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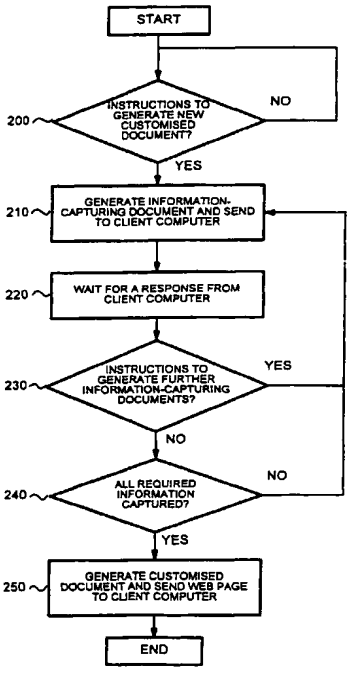
(54) Title: A METHOD OF AND APPARATUS FOR GENERATING DOCUMENTS



(57) Abstract: A method of using one or more data processing means to generate a customised document (such as a customised contract) from a standard document (such as a word processing document) containing one or more items of known information (such as alternative standard clauses) and one or more logical rules for determining, on the basis of further information to be supplied or captured (such as specific requirements for the customised contract), the use made of one or more of said items of known information when generating said customised document according to Figure (4b).

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A METHOD OF AND APPARATUS FOR GENERATING DOCUMENTS

Field

The present invention relates to a method of and apparatus for generating documents. More particularly, but not exclusively, the present invention relates to a method of and apparatus for generating customised documents from standard documents. More particularly, but not exclusively, the invention relates to a method of and apparatus for generating customised documents from a knowledge-base using further information captured from one or more further sources of information.

Background

Many businesses or organisations produce large quantities of documents on a regular basis. Often, these documents are lengthy and require considerable skill or expertise to create. In many cases, it is desirable to produce new documents using pre-prepared standard documents as a basis. For example, legal documents are commonly created from precedents or standard form documents by simply inserting new information where appropriate or by adapting existing information. In some cases, by using standard documents originally created by an expert, it is possible to create customised documents without need of an expert.

Many benefits come with the removal of the need for experts to produce new documents from scratch. Methods of generating customised documents from standard documents are generally more efficient in terms of time, cost, and quality of result. Furthermore, standardisation of documents is desirable, both in itself and to simplify further dealing with documents once generated. However, methods of generating customised documents from standard documents have their own difficulties. There is the need to create and maintain the standard documents. There is also the need to provide training and guidance for non-experts using those standard documents to produce customised documents. Often, the skills required to create or maintain the standard documents are different to the skills required to create or maintain guidance or training materials. Furthermore, with the use of information technology to automate or partially automate document generation there is the need for further skill in developing and maintaining the information technology solutions to document generation problems. Furthermore, where customised documents are created from standard documents and the means exists to modify the customised document before it becomes "final" (for example, suitable for publication or signature on behalf of contracting parties), there is a risk of a document being produced that contains unintended or unauthorised modifications.

Many methods of automating or partially automating document generation are known. A simple method is to use word processing software

on a computer. For example, a standard form document contained in a word processing file may be customised by typing in additional information, deleting existing information, and/or cutting and pasting existing information. Also, word processing software packages often contain facilities for generating standard templates such as fax cover sheets, letters, or proposals. Specific templates may be created for particular use. Furthermore, word processing software often includes facilities for generating standard text or formatting within documents using a macro programming language as well as facilities for inserting information captured from external databases into a document.

One problem with using word processing software to generate customised documents from standard documents is that it is hard to ensure that customised documents are produced accurately and consistently. Such methods of document generation require final verification of the document because the mode of information input is largely unrestricted and errors or omissions can easily occur. Furthermore, because word processing software packages are not specialised to the requirements of automated document generation, some desirable features are not provided, for example, user guidance on how to customise the standard documents.

More sophisticated methods of automated document generation are known. Commonly, a computer program, constituting an expert system, is developed and generates a customised document by asking an end-user a

series of guided questions in accordance with a predefined set of rules. An example of such a system is MasterDraft 3.0 from First Draft Legal System, Inc. details of which are available from the following web-site - http://www.masterdraft.com/. One problem with automated document generation systems in general is that the knowledge-based expertise is generally hidden from the user and may become out of date fairly quickly. Therefore, users are reliant on the developer of the computer program for regular updates of the knowledge-based components of the system. Users are also reliant on the developer for quality assurance of the documents generated.

Another problem inherent in known methods of automated document generation is that at the point when a document is to be generated, the information required to generate a customised document often comes from more than one person or source of information. Furthermore, required information may not be available at once, but may need to be provided over a period of time. An expert who prepares a document is normally able to obtain all the required information, by reason of being in communication with the people who can provide that information. This is often achieved by questioning which is dependent on the expert's skill in determining the precise information required.

One particular activity in which large quantities of documents are generated is the activity of contract tendering. Briefly, a buyer who wishes to select a suitable supplier from whom to purchase goods or services specifies

its requirements in a document called an invitation to tender which is distributed or advertised to selected suppliers. Suppliers who wish to be considered by the buyer respond by submitting tender documents to the buyer which reviews and compares the tenders received and selects one or more winning suppliers. Often, reports are created comparing the various tenders received to assist in the selection process, and the buyer may also introduce a process of more or less formal nature that requires each tender to be scored and then a cross-correlation of scores for all tenders must be prepared. Contracts are then created on the basis of the requirements set out by the buyer and the responses of the winning supplier or suppliers. The winning and losing suppliers are then notified of the outcome of their tenders. It can be seen that the tendering process involves creation of substantial documentation. Conventional methods of carrying out the tendering process are generally manual, time-consuming, error-prone and involve substantial effort from personnel.

It is known to use one or more computer systems to produce documents in a distributed fashion. For example, a number of authors may work on a single document produced using word processing software on a

single computer. Alternatively, the document may be distributed via removable storage means or over a communications network to one or more computers running compatible word processing software. As mentioned above, such methods of document generation require verification of all of the document before it can be treated as "final" because the mode of information input is largely unrestricted and errors or omissions can easily occur.

It is known to restrict or control the input of information into documents. For example, many word processing software packages have the facility to lock portions of text whilst leaving other portions unlocked for amendment of information. Also, many word processing software packages have the facility to include fields which may be completed by the author in a partially restricted way, for example with text only or numeric information only. Another example of computer programs which can control or restrict the input of information is browser applications for browsing documents of the Hypertext Mark-up Language (HTML) format or Extended Mark-up Language (XML). HTML is the document format used in the World Wide Web (WWW), which forms part of the global communications network for computers known as the Internet. HTML forms, or Web pages, are generally transmitted over the Internet using the Hypertext Transfer Protocol (HTTP) and Transmission Control Protocol/Internet Protocol (TCP/IP). HTML is a format that allows portions of a document containing text or graphics to be locked and uneditable to an end-user browsing the document, whilst providing

various means for inputting information such as push buttons, free-form text entry boxes, tick boxes, pull-down menu list boxes, radio buttons, and other graphical user interface (GUI) means for inputting information in a controlled manner. Such HTML documents are often called HTML forms. XML is a more recent format which may be used in the WWW in future.

It is also known to capture information using browser applications. For example, many Internet transactions are executed by a first party, using a computer connected to the Internet, sending a standard HTML form to a second party, also using a computer connected to the Internet, who enters information as specified in the HTML form using a browser application. When finished, the second party returns the entered information to the first party, often by means of a "Submit" push button which uses an embedded Internet address automatically to transmit the information back to the first party over the Internet. The first party then performs some task in response to the captured information. For example, the HTML form may be the front end page of a search engine, the captured information may be search criteria, and the task performed by the first party may be to transmit to the second party the results of performing an Internet search using the search criteria.

Summary of Invention

According to a first aspect of the present invention there is provided a method of using one or more data processing means to generate a customised document (such as a customised contract) from a standard document (such as

a word processing document) containing one or more items of known information (such as alternative standard clauses) and one or more logical rules for determining, on the basis of further information to be supplied or captured (such as specific requirements for the customised contract), the use made of one or more of said items of known information when generating said customised document.

Preferably, the method comprises the steps of using one or more data processing means to i) generate one or more information-capturing documents (such as Web forms) for capturing at least part of said further information, said information-capturing documents being generated on the basis of said standard document; ii) capture at least part of said further information using said information-capturing documents; and iii) generate said customised document on the basis of said captured further information and said standard document.

According to a second aspect of the present invention there is provided a method of using one or more data processing means to generate a customised document from a standard document stored in the form of data on data storage means, said standard document comprising:

i) data representing one or more units of known information for possible inclusion in said customised document;

ii) data representing one or more logical rule units, each of which determine, on the basis of information not contained in said

standard document ('further information'), the use made of one or more of said known information units when generating said customised document ('determined known information units'); and

iii) data representing said further information,

said standard document data being in a first document presentation format in which each of said logical rule units and said determined known information units are associated with each other when said standard document is presented to a user,

said method comprising the steps of:

a) processing said standard document data to generate data representing one or more documents for capturing at least part of said further information ('information-capturing documents'), said information-capturing document comprising means for inputting information by a user and said information-capturing document data being in a second document presentation format different to said first document presentation format;

b) processing said information-capturing document data to generate said one or more information-capturing documents for presentation, in said second document presentation format, to one or more users and to capture, using said means for

inputting information, data representing at least part of said further information from said one or more users; and

c) processing said standard document data and said captured further information data to generate said customised document.

Preferably, said standard document further comprises data representing one or more user guidance units relating to one or more of said known information units and logical rule units ('related units'), and said first document presentation format is such that each of said user guidance units and said related units are associated with each other when said standard document file is presented to a user.

One advantage of the present invention is that by including in the standard document all the known units, all the logical rule units and all the user guidance units, if any, in a manner where related units are associated with each other when presented to a user, it is possible to verify completely the standard document. For example, if the standard document is to be used for generating legal contracts, the known information units may each contain a single clause for possible inclusion in the customised document. All possible clauses will be contained and viewable in the standard document. Furthermore, all the logical rules and user guidance will be contained, viewable and associated with their corresponding clauses in the standard document. Thus, the accuracy of all the clauses, their logical rules and the

user guidance may easily be verified by suitably skilled personnel, for example by knowledge experts, and training / guidance experts, by simply viewing the standard document.

Also preferably, said units of said standard document are presented to a user, in said first document presentation format, as a two-dimensional table with one or more rows and three columns: a first of said columns comprising only said known information units, a second of said columns comprising only said logical rule units, and the third of said columns comprising only said user guidance units, if any.

Also preferably, the standard document comprises a further column of labelling units uniquely identifying each row of said table which permits addition of labelling units uniquely identifying added rows at interstices such that rows may be retraced even if reordered.

A further or alternate advantage of the present invention is that the tabular format used for the standard document is clear and the different types of unit contained in it are easily identified. Further, by separating known information units, logical rule units and user guidance units, into different columns in the standard document the different types of units may easily be edited independently of each other. Thus, units of a different type may be independently created and maintained by people with different skills, for example - knowledge experts, and training / guidance experts respectively.

Also preferably, steps a) and c) are performed using first data processing means, and step b) comprises the sub-steps of:

i) transmitting data representing one or more of said information-capturing documents from said first data processing means to one or more further data processing means using communications means,

ii) processing said transmitted data using said one or more further data processing means to generate said one or more information-capturing documents for presentation, in said second document presentation format, to one or more users and to capture, using said means for inputting information, data representing at least part of said further information from said one or more users; and

iii) transmitting said captured further information data from said one or more further data processing means to said first data processing means using communication means.

A further or alternate advantage of the present invention is that by transmitting data representing one or more information-capturing documents, capturing the further information using one or more further data processing means and transmitting the captured further information data to first data processing means for generating the customised document, it is possible to

capture the further information from more than one source and over a period of time.

Also preferably, said standard document further comprises data representing instructions for performing, using data processing means, at least part of steps a), b), and c) and said information-capturing documents generated using said further data processing means comprise data representing instructions for performing, using data processing means, sub-step b) iii).

A further or alternate advantage of the present invention is that by including in the standard document instructions for automatically performing at least part of steps a), b), and c) and by including in the information-capturing documents data representing instructions for automatically performing sub-step b) iii), it is also possible to arrange the process of capturing the further information, from one or more sources of information over a period of time, and generating the customised document in a predetermined and automated, or partially automated, fashion.

Also preferably, one or more of said information-capturing documents generated further comprise data representing one or more of said units of said standard document and, in said second document presentation format, each of said means for inputting particular further information and said units comprising data representing said particular further information are associated with each other when said information-capturing documents are presented to a user. Further, in said second document presentation format, each of said

logical rule units, if any, and said determined known information units, if any, are associated with each other when said information-capturing documents are presented to a user. Further, in said second document presentation format, each of said user guidance units, if any, and said related units, if any, are associated with each other when said information-capturing documents are presented to a user.

Also preferably, in second document presentation format, said units and said means for inputting information are presented to a user as a two-dimensional table comprising one or more rows and one to four columns, with known information units, if any, logical rule units, if any, and user guidance units, if any, contained in separate columns and said means for inputting information contained in one of said separate columns or in a further column.

A further or alternate advantage of the present invention is that by including some or all of the units of the standard document in the information-capturing documents, and by presenting those units in said second document presentation format, there is continuity of representation between the standard document and the information-capturing documents. Thus, those inputting information into the information-capturing documents may be provided with user guidance as well as the context of the document or document part for which they are required to supply information (i.e. the known information units) just at the time that they are required to input the information. For example, in the case of legal contract generation, the information-capturing

document may show questions for capturing the further information alongside the relevant clause of the contract and user guidance on how to answer those questions and/or on the meaning or relevance of the clause.

Also preferably, one or more of said known information units in said standard document comprise formatted text and those known information units included in said information-capturing documents and said generated customised document comprises identical text formatted at least partially identically.

Also preferably, further information data, captured using a particular information-capturing document, is uniquely associated with the particular standard document, or particular version of a standard document, from which said particular information-capturing document was generated, and is not used to generate a customised document in combination with data representing a different standard document or a different version of the particular standard document.

Also preferably, said information-capturing document data comprises data for controlling, restricting or validating, according to predetermined rules, the information captured from a user using one or more of said means for inputting information presented in one or more of said information-capturing documents. Further, said units comprised in said information-capturing documents and said generated customised document are uneditable by a user.

It is a further or alternate advantage of the present invention that by:

i) including in the information-capturing documents means for capturing information in a controlled, restricted or validated way, and/or by

ii) said units comprised in said information-capturing documents and said generated customised document being uneditable by a user, and/or by

iii) verifying that further information, captured using a particular information-capturing document, is uniquely associated with the particular standard document, or particular version of a standard document, from which said particular information-capturing document was generated, and is not used to generate a customised document in combination with data representing a different standard document or a different version of the particular standard document,

the quality and accuracy of the information captured and of the customised document generated using the information is assured. All the instructions and means required to capture the further information as accurately as possible, including means for controlling, restricting or validating user input as well as user guidance, are contained in the standard document. Furthermore, the customised document is only generated from a standard document and captured further information if the further information was captured using an information-capturing document generated from the standard document. Thus, if the standard document is error-free, then the customised document will be generated accurately using the further information. The only possibility of

error, which error will nonetheless not be such as to prevent the generation of a customised document, is human error when inputting the further information required, for example typographical errors.

Also preferably, said standard document data is in a standard word-processing format, said information-capturing document data is in a standard browsing format and data representing said generated customised document is in a standard browsing format, a standard printing format or a standard word-processing format.

A further or alternate advantage of the present invention is that by creating the standard document in a standard format suitable for word processing, there is provided a standard and well-known user interface for creating and maintaining the standard document. Further, by generating information-capturing documents in a format suitable for browsing using browsing applications, there is provided a standard and well-known interface for capturing the further information required to generate the customised document. Further, by generating said customised document in a standard browsing format, a standard printing format or a standard word-processing format, customised documents may be viewed or printed using existing information technology hardware and software. Thus, there is a reduced danger of technology lock-in since non-standard software, hardware and specialised user training are not required. Further, the information-capturing documents and customised documents are in a format easily distributed

between individuals and organisations using communications means such as intranets or the Internet.

According to a third aspect of the present invention there is provided a method of generating a customised document using one or more data processing means comprising the steps of:

a) creating a standard document, said standard document comprising:

i) known information for possible inclusion in said customised document,

ii) instructions for capturing further information, and

iii) instructions for generating said customised document using said known information and said further information,

b) on the basis of said instructions for capturing further information, generating one or more information-capturing documents,

c) capturing said further information using said one or more information-capturing documents, and

d) on the basis of said instructions for generating said customised document, generating said customised document using said known information and said captured further information.

According to a fourth aspect of the present invention there is provided a method of using one or more data processing means to carry out at least part of a tendering process, said method comprising the steps of:

a) presenting a first user with one or more information-capturing documents;

b) capturing information from said first user using said one or more information-capturing documents;

c) generating a second information-capturing document for capturing information required to generate a tender on the basis of said information captured from said first user;

d) presenting a second user with said second information-capturing document;

e) capturing said information required to generate a tender document from said second user using said second information-capturing document;

f) generating a first tender document on the basis of said information captured from said second user.

Preferably, the method comprises the further step, performed after step c) and before step d), of generating a notification document for notifying the second user of an invitation to tender, said notification document being generated on the basis of the information captured from the first user and

comprising data representing the location of the second information-capturing document.

Also preferably, the method comprises the following further step, which is performed after step f):

g) generating a contract document on the basis of said information captured from said second user.

Also preferably, the method comprises the following further steps performed after step b):

cc) generating a third information-capturing document for capturing information required to generate a tender on the basis of said information captured from said first user;

dd) presenting a third user with said third information-capturing document;

ee) capturing said information required to generate a tender from said third user using said third information-capturing document;

ff) generating a second tender document on the basis of said information captured from said third user;

said method further comprising the following step performed after steps f) and ff):

gg) generating a first report document on the basis of said first and second tender documents or on the basis of information captured from said first, second or third users.

Also preferably, the first report document provides scores comparing the information captured from the second and third users or the overall tenders of the second and third users. Also preferably, a second report document is generated comprising information on the stage in the tendering process reached by the second or third users.

Advantages of the present invention in the field of contract tendering include the speed at which the documents for use in the tendering process may be generated, the removal of substantial effort on the part of personnel in administering the tendering process, the reduction or removal of the risks of errors occurring in the documentation, the facilitation of comprehensive or otherwise unfeasibly burdensome scoring processes for the tenders including the automated generation of a scoring report for some or all tenders, and the facilitation of automatic progress reporting on the stages reached in the tendering process, thereby assisting further in the administration of the process.

Preferably, if generated, any of the one or more information-capturing documents, the second information-capturing document, and the third information-capturing document, is or are generated using the method of generating information-capturing documents according to any of the first, second and third aspects of the present invention. Also preferably, if generated, any of the first and second tender documents, the notification

document, the first and second report documents, and the contract document, is or are generated using the method of any of the first, second and third aspects of the present invention. Accordingly, further advantages of the present invention in the field of contract tendering are as described above in respect of the second aspect of the present invention.

Figure 6a to 6e (5 pages) show a first example of an information-capturing document generated according to the present invention;

Figure 7a to 7f (6 pages) show a second example of an information-capturing document generated according to the present invention;

Figure 8a to 8e (5 pages) show an example of a customised document generated according to the present invention;

Figure 9 shows the process of translating a standard document using the arrangement of data processing means and communication means of Figure 2;

Figure 10 shows the process of generating a customised document using the arrangement of data processing means and communication means of Figure 2 according to a first mode of use of the present invention;

Figure 11 shows the process of generating a customised document using the arrangement of data processing means and communication means of Figure 2 according to a second mode of use of the present invention;

Figure 12 shows the process of generating a customised document using the arrangement of data processing means and communication means of Figure 2 according to a third mode of use of the present invention; and

Figure 13 shows the process of generating a customised document using the arrangement of data processing means and communication means of Figure 2 according to a fourth mode of use of the present invention.

Further aspects of the present invention are set out in the accompanying claims.

Brief Description of the Drawings

Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1a shows a possible arrangement of data processing means and communication means for implementing the present invention;

Figure 1b shows an alternative possible arrangement of data processing means and communication means for implementing the present invention;

Figure 2 shows a further alternative possible arrangement of data processing means and communication means for implementing the present invention;

Figure 3 shows the functional components of a translator program according to the present invention;

Figure 4a shows the client/server architecture used to implement a document generation program according to the present invention;

Figure 4b is a flow diagram showing the process followed by a document generation program according to the present invention;

Figures 5a to 5l (12 pages) show an example of a standard document created according to the present invention;

Figure 14 shows a first information-capturing document generated in a particular implementation of the present invention in the field of contract tendering;

Figure 15 shows the information-capturing document of Figure 14 with data entered;

Figure 16a to 16c shows a second information-capturing document generated in a particular implementation of the present invention in the field of contract tendering;

Figure 17a to 17c shows the information-capturing document of Figure 16a to 16c with data entered;

Figure 18a to 18c shows a customised document generated according to a particular implementation of the present invention in the field of contract tendering with data entered;

Figure 19 shows a third information-capturing document according to the particular implementation of the present invention in the field of contract tendering with data entered;

Figure 20 shows the information-capturing document of Figure 19 with data entered;

Figure 21 shows an e-mail generated according to the particular implementation of the present invention in the field of contract tendering;

Figure 22a to 22b shows a fourth information-capturing document generated according to the particular implementation of the present invention in the field of contract tendering;

Figure 23a to 23b shows the information-capturing document of Figure 22a to 22b with data entered;

Figure 24a to 24b shows a second customised document generated according to the particular implementation with data entered;

Figure 25a to 25e shows a fourth customised document generated according to the particular implementation generated according to the particular implementation of the present invention in the field of contract tendering.

Detailed Description of Embodiments of the Present Invention

The present invention is implemented using one or more data processing means. Where more than one data processing means are used, they are connected together using communication means. Client/server architecture is used. One of the data processing means functions as a server and the other data processing means function as clients. If the present invention is implemented using one data processing means, the single data processing means functions as both server and client. Figures 1a, 1b and 2 show typical arrangements of data processing means and communication means for implementing the present invention.

Figure 1a shows a server computer 10 connected to two local client computers 30 and 32 by means of a local area network (LAN) 20. Each computer 10, 30 and 32 runs an operating system program such as Microsoft NT™ and network programs such as Novell Netware™. The server computer 10 also runs a Web server application such as Microsoft Internet Information Server™. Each of the local computers 30 and 32 also run a browsing application such as Microsoft Internet Explorer™. Server computer 10 and local computers 30 and 32 communicate with each other using Transmission Control Protocol/Internet Protocol (TCP/IP) and HTTP. Together, server computer 10, local computers 30 and 32, and LAN 20 form an intranet.

Figure 1b shows server computer 10 connected to four client computers 31, 33, 35 and 37, which may be local or remote, by means of

connections to the Internet 22. Each computer 10, 31, 33, 35 and 37 runs an operating system program such as Microsoft NT™ and network programs such as Novell Netware™. The server computer 10 also runs a Web server application such as Microsoft Internet Information Server™ and is arranged to accept and respond to client requests from the Internet 22. Each of the computers 31, 33, 35 and 37 also run a browsing application such as Microsoft Internet Explorer™. Server computer 10 and computers 31, 33, 35 and 37 communicate with each other using Transmission Control Protocol/Internet Protocol (TCP/IP) and HTTP.

Figure 2 shows a server computer 10 connected to two local client computers 30 and 32 using a LAN 20 and also connected to two remote client computers 34 and 36 through the Internet 22. Each computer 10, 30 and 32 runs an operating system program such as Microsoft NT™ and network programs such as Novell Netware™. Server computer 10 also runs a Web serving application such as Microsoft Internet Information Server™. Each of client computers 30, 32, 34 and 36 also run a browsing application such as Microsoft Internet Explorer™. Proxy servers and firewalls (not shown) may be used to protect the intranet from unauthorised access from computers connected to the Internet 22. Server computer 10, local computers 30 and 32 and remote computer 34 and 36 communicate with each other using TCP/IP and HTTP.

Henceforth in this document, the arrangement of computer systems and communication means as described above with reference to Figure 2, being the most general of the arrangements described above, will be used to describe embodiments of the present invention.

One or more of the computer systems 10, 30, 32, 34 and 36 runs a word processing application such as Microsoft Word™. Microsoft Word™ is used to create and maintain standard documents and may be used to view the customised documents generated. As will be described below in greater detail, the standard document consists of known information, and logical rules for determining, on the basis of further information to be captured, how to use items of known information when generating the customised document. The standard document may also contain user guidance. Standard documents must conform to a standard structure described below in greater detail.

Furthermore, one or more of computer systems 10, 30, 32, 34 and 36 runs a translator program, described in detail below, for converting document files in the Microsoft Word™ format into a format suitable for processing by a document generation program.

Further, server computer 10 also runs the document generation program, mentioned above and described in greater detail below, which is used to generate information-capturing documents, capture at least part of the further information and generate the customised document.

Description of Translator Program

Next, the functioning of the translator program will be described in detail. The main function of the translator program is to convert standard documents in Microsoft Word™ format into a format suitable for processing by the document generation program. This format is either Prolog source code stored in an ASCII (American Standard Code for Information Interchange) file format or a compiled object file of the Prolog source code. Prolog is a standard programming language whose syntax is defined by the International Standards Organisation (ISO). Prolog is a language useful for developing rule-based applications or systems.

The functioning of the translator program will now be described with reference to Figure 3. A standard document 40, created and maintained using Microsoft Word™, must conform to a standard structure described in detail below. Using a representation of this structure, translator program 90 is able to create an Prolog source code image of the information contained in standard document 40.

Translator program 90 comprises three main components a parsing component 92; a verifying component 94; and a code generating component 96. Parsing component 92 uses the object linking and embedding (OLE) capabilities of Microsoft Word™ to interrogate a standard document 40 supplied to it. In doing this, parsing component 92 acts as a master process and invokes Microsoft Word™ as a slave process. Parsing component 92

uses a representation of the standard structure of all standard documents to extract the various parts of the standard document 40. The data resulting from this process is then sent to the verifying component 94.

The verifying component 94 recognises common items in the data supplied by the parsing component, such as repeated variable names representing items of further information to be captured, and associates them together. Verifying component 94 also checks for errors and inconsistencies in the parsed data. Errors might arise, for example, if there are inconsistencies in the logical rules of the standard document, or mismatched use of variables. Each error is identified and logged to a reporting file. If there are no errors detected by verifying component 94, the result is passed to the code generating component 96.

The code generating component 96 takes the parsed and verified data obtained by interrogating the standard document and generates, according to the known syntax, a Prolog source code program file 41, suitable for processing by the document generation program. The Prolog source code of document 41 is thus an image of the information contained in the standard document 40 which has merely been translated into a format suitable for execution.

Whilst performing its main function of generating an image, the translator program also stores versions of each of the known information units of the standard document 40 (for example, formatted text for possible

inclusion in the customised document) in Rich Text Format (which is given the file extension RTF) within source code program 42. These RTF versions are used later by the document generation program when generating the customised document in RTF format. The translator program achieves this by interrogating the standard document 40 using the OLE capabilities of Microsoft Word™, in particular the capability to obtain RTF translations of portions of a document in Microsoft Word™ format.

Description of Document Generation Program

Next, the functioning of the document generation program will be described. The purpose of the document generation program is to generate information-capturing documents, capture at least part of the further information and generate customised documents on the instructions of a user. To do this the user must specify a standard document which has been translated using the translator program described above. The document generation program is run as a server program and is instructed to perform tasks by users of client browser applications, such as the browser application Microsoft Internet Explorer™.

Figure 4a shows the client/server architecture used to implement the document generation program. Document generation program 108 is composed of a Prolog server program 104, described below, with a Common Gateway Interface (CGI) script 106 providing the interface between a Web server program 102, such as Microsoft Internet Information Server™, and the

Prolog server program 104. Client computer 100 runs a browsing application, such as Microsoft Internet Explorer™, and is connected to server computer 10 through communication means. A user of client computer 100 instructs document generation program 108 to perform a task by passing a uniform resource locator (URL) request to the Web server program 102 of server computer 10 at step 110.

The URL request may be made by the user of client computer 100 typing a request in to the address field of the browser application or clicking on a button in a Web page displayed by the browser application which has been set up automatically to perform the URL request. The URL request will generally contain the network address of server computer 10, followed by the directory and file name of the CGI script 106 and then various instructions and/or data in the form of a query string to be passed to Prolog server program 104 for execution. The Web server application 102 receives the URL request from client computer 100 and passes the instructions and/or data to the Prolog server program 104 at step 112 through the CGI script interface 106.

With reference to Figure 4a, is to be understood that client computer 100 may be a computer with direct access to server computer 10 via an intranet or the Internet, as described above with reference to computers 30, 31, 32, 33, 35 and 37 of Figures 1a and 1b, or it may be a computer with no direct access to server computer 10, as described above with reference to computers 34 and 36 of Figure 2. In the latter case, to enable a remote

computer 100 to pass a URL request to server computer 10, the URL request is sent in the form of an e-mail to a predetermined e-mail address of a router computer (not shown) directly connected to server computer 10 which demultiplexes the e-mail and automatically forwards the encapsulated URL request to server computer 10 for processing. The router computer acts as a proxy client to server computer 10 and a proxy server to client computer 100. From the point of view of client computer 100 and server computer 10 the client/server request-response transaction remains essentially the same in both cases. The router computer runs an operating system, such as Unix™, and a router program arranged to demultiplex e-mails and forward encapsulated URL requests as described above.

Alternatively, where client computer 100 has direct access to server computer 10, but the information-capturing document is forwarded from client computer 100 to a further client computer (not shown) which does not have direct access to server computer 10, the URL request from the further client computer is sent in the form of an e-mail to a predetermined e-mail address of a router computer (not shown) directly connected to server computer 10. The router computer demultiplexes the e-mail received to extract the URL request and the e-mail address of client computer 100 (which is contained in the e-mail from the further computer) and automatically forwards to client computer 100 an e-mail informing the user of receipt of the response. The e-mail sent to client computer 100 further contains HTML

code, activated by a push button for example, for automatically passing the URL request to server computer 10 for processing. When this URL request is passed to server computer 10, client computer 100 becomes the requesting client and server computer 10 will send its response to client computer 100 rather than the further computer. From the point of view of server computer 10 the client/server request-response transaction remains essentially the same as if the further information was captured using client computer 100. The router computer runs an operating system, such as Unix™, and a router program arranged to demultiplex received e-mails, extract URL requests and forward to client computer 100 e-mails containing HTML code for passing the URL requests to server computer 10 as described above.

The Prolog server program 104 is implemented using Logic Programming Associates' ProWeb Server™. The ProWeb Server™ is a program for developing and implementing Prolog applications which is capable of generating HTML and JavaScript™. A detailed description of the ProWeb Server™ program is found in the ProWeb User's Manual available from Logic Programming Associates Ltd., Studio 4, RVPB Trinity Road, London SW18 3SX, UK incorporated herein by reference.

The ProWeb Server™ program is used to compile or execute the Prolog source code program 42, generated by the translator program, using the instructions and/or data passed from the user of client computer 100. The CGI

script 106 may be regarded as a wrapper encapsulating Prolog server program 104.

Prolog server program 104 executes the specified Prolog source code program 42 on the basis of the user instructions and/or data contained in the URL request, and generates one or more Web pages in the form of HTML code and JavaScript™ in response. ProWeb Server™ uses incremental compilation techniques to compile relevant sections of the Prolog source code for execution as required.

Depending on the user's instruction and/or data, and any instructions contained in the Prolog source code program 42, the response generated by Prolog server program 104 will either be one or more Web pages constituting information-capturing documents or a Web page constituting a generated customised document. Also, depending on the user's instruction and/or data, and any instructions contained in the Prolog source code program 42, the Web page or pages generated by server program 106 will be sent to client computer 100 or to one or more further computers, connected to server computer 10 by communication means.

Where a computer, to which a Web page is to be sent, has direct access to server computer 10, the response is sent as a Web page to the IP address of the specified computer. Where, however, the computer has no direct access, the Web page response generated by server 10 is encapsulated in an e-mail and sent out to a specified e-mail address corresponding to the remote

computer. Where no network or e-mail address is specified for a further computer, the Web page will be sent to the address of the client computer which initiated the client/server request-response transaction.

It will be described in detail below how document generation program 108 may generate responses, such as information-capturing documents, for distributing to and capturing further information from one or more further computers. However, for the purpose of describing the operation of document generation program 108 with reference to Figures 4a and 4b, it will presently be assumed that only one client computer, namely client computer 100, is involved in the client/server request-response transaction.

To generate a new customised document, the user of client computer 100 instructs document generation program 108 by passing a URL request specifying a Prolog source code file 42 corresponding to a particular standard document. Document generation program 108 initiates a session with the user of client computer 100. In generating a response to the user request, document generation program 108 accesses and incrementally compiles the Prolog source code file 42. Using the URL instructions and the Prolog source code program 42, document generation program 108 generates a Web form information-capturing document which is passed to the Web server application 102 via the CGI script interface 106 at step 114. At step 116, the server computer 10 sends the Web form information-capturing document to client computer 100.

The Web form information-capturing documents generated by document generation program 108 use the standard data-entry features of HTML described above to capture information from end-users browsing the Web form. When parts of the standard document included in an information-capturing document contain variables or other data representing further information to be captured, then the information-capturing document generated automatically includes appropriate data-entry items for inputting the required information corresponding to the variables, according to any specifications contained in the standard document, or, in default, according to the context of the variable in the standard document. JavaScript™ is embedded in the information-capturing documents to control, restrict or validate the information captured from a user. For example, JavaScript™ code may be used to check whether the information entered by a user fulfils specified criteria set out in the standard document and described in greater detail below. If the criteria are not fulfilled, error messages may be displayed and the user will be prevented from sending the invalid further information back to server computer 10.

Furthermore, standard "submit" features of HTML are used to generate code for automatically sending the captured information back to server computer 10 which is activated by a push button in the Web form information-capturing document (e.g. a "Submit" button). In the case of an embodiment of the present invention in which all client computers have direct

access to server computer 10, as described above with reference to Figures 1a and 1b, the "Submit" button is arranged to pass a URL request to server computer 10 with the captured information and any other user instructions in the form of a query string.

In the case of an embodiment of the present invention in which some client computers may have direct access to server computer 10, but some may not, as described with reference to Figure 2, the "Submit" button is arranged to encapsulate a URL request within an e-mail and send the e-mail to the router computer described above. In the latter case, the "Submit" button may alternatively be arranged to determine whether client computer 100 is has direct access to server computer 10 or not and then select whether to send the captured information and any other user instructions to server computer 10 in the form of a direct URL request or a URL request embedded in an e-mail accordingly.

Furthermore, standard "mail to" features of HTML may be used to generate code for forwarding the information-capturing document to a further computer for capturing further information from a further user. The code would be activated by a push button in the Web form information-capturing document (e.g. a "Mail To" button). It is optional to include a "Mail To" button and corresponding code in the information-capturing document. The option is specified in the instructions contained in the standard document. The information-capturing document is forwarded as an attachment to an e-mail

sent to the e-mail address of the further user. The code may have a specified e-mail address (if one is specified in the standard document) or may query the user of client computer 100 for a forwarding e-mail address for the further user. The information-capturing document forwarded to the further computer will be identical to the information-capturing document first sent to client computer 100. Thus, it will contain push buttons for submitting captured information to server computer 10 and for forwarding the information-capturing document to a further computer as described above.

Once the response has been sent to client computer 100, the client/server request-response transaction is complete. However, the client/server session is not necessarily complete. A session is complete when one or more client/server transactions are completed which together result in the generation of a final customised document delivered to the client computer 100 or some other specified computer or printing device. In between transactions, document generation program 108 caches the state of the session to data storage means such as the hard disk of server computer 10. A unique session identifier is used to identify transaction requests received with previously cached sessions.

Further, document generation program 108 generates and maintains a historical database of all client/server request-response transactions using Microsoft Access ™. One use of the historical data is for exporting to an external document management system which may record details of all the

stages in generating each particular customised document including amendment and version details. Another use of the historical data is to provide the ability for an end-user to return to an earlier stage in the generation of a customised document and restart the process from that point.

On receiving the Web form information-capturing document, the user of client computer 100 may enter some or all of the further information using data-entry items provided and send the information to document generation program 108 by clicking on the "Submit" button. If the captured data is sufficient for document generation program 108 to generate a customised document on the basis of the Prolog source code file 42 corresponding to the standard document, and if the standard document contains no other instructions for document generation program 108 to perform, then the customised document will be generated and a Web page, containing the customised document in HTML format and/or links for downloading the customised document in other formats, will be sent to client computer 100. The session with the user will then be complete. However, it is not necessary for the user to input all of the required data at once. If the captured data is not sufficient for document generation program 108 to generate a customised document (i.e. not all the further information required to generate the customised document has been captured), then a further Web form information-capturing document for capturing the further information required

will be generated. The process of capturing the further information required will then continue as above.

As described below in greater detail, the standard document may specify whether items of further information to be captured, for example variables, are required before a customised document can be generated. By default, items of further information are not required and the document generation program will generate a customised document on the basis of the standard document and partial further information, or even no further information, as best it can. For example, where further information representing a text or numeric variable is not required and has not been captured, the document generation program will leave blanks in the generated customised document at corresponding positions. Where, however, items of further information are specified in the standard document as being required, then no customised document will be generated until the further information has been captured by further information-capturing documents.

Prior to generating a customised document, document generation program 108 checks that the further information was captured using one or more information-capturing documents generated from Prolog source code program 42 and not from some other Prolog source code program. This is achieved by assigning unique identifiers to all Prolog source code programs and including the unique identifier of a particular Prolog source code program in all information-capturing documents generated from it. If the further

information was captured using one or more information-capturing documents generated from some other Prolog source code program then no customised document will be generated. This is to prevent customised documents being generated from different standard documents or from different versions of a standard document, parts of which may be incompatible or out of date.

As mentioned above, the customised document generated by the document generation program may be sent to client computer 100 in HTML format. Additionally, or alternatively, a Web page containing links for downloading the customised document may be sent. Such a Web page contains embedded HTML code for sending a request to server computer 10, either as a URL request or an e-mail encapsulated URL request, to send the generated customised document back to client computer 100 in formats other than HTML. Other formats maybe Microsoft Word™ (which is designated by the file extension DOC), RTF or Adobe Acrobat™ format (which is designated by the file extension PDF). PDF format is preferred for the customised document because it provides a format that may be viewed and printed using any computer and printer system for which versions of the Adobe Acrobat Reader™ are available and installed. Further, it renders a printed document which is page for page identical with the viewed document which can also be completely locked and therefore unalterable by an end-user. The document files in formats other than HTML are sent using the File

Transfer Protocol (FTP) with Multi-purpose Internet Mail Extension (MIME) headers to indicate the format of the document file to the browser application.

Figure 4b is a flow diagram showing the process followed by document generation program 108 where server computer 10 interacts with client computer 100 in a session as described above. At step 200 server computer 10 waits for an instruction from client computer 100 to generate a new customised document. On receiving such an instruction, server computer 10 generates, at step 210, a first information-capturing document and sends it to client computer 100. An end-user of client computer 100 enters information and sends it to server computer 10 using the information-capturing document. At step 220 server computer waits for a response from client computer 100. When a response has been received, server 10 determines, at step 230, whether there are any further instructions to generate further information-capturing documents. These further instructions may be contained in the standard document as described in greater detail below, or in the response sent by client computer 100. If there are such instructions, server computer 10 proceeds to generate a further information-capturing document and sends it to client computer 100 at step 210. If not, server computer 10 proceeds to step 240 where it determines whether all the information required to generate the customised document (as specified in the standard document) has been received from client computer 100. If not, server computer 10 proceeds to generate a further information-capturing document at step 210 for

capturing the further required information and sends it to client computer 100. If all the required further information has been received, the process continues to step 250 where server computer 10 generates the customised document and sends a Web Page to client computer 100.

Description of Standard Documents

Next, the structure and contents of an example standard document and two example information-capturing documents will be described in detail. Figure 5 (spanning 12 pages) shows an example of a standard document for use in generating customised insurance policy documents. The standard document was created using the Microsoft Word™ word processing software package. The features and capabilities of Microsoft Word™ are described in documents available at Microsoft's™ website (http://www.microsoft.com /office/word/) incorporated herein by reference. The standard document is an ordinary Microsoft Word™ document file which conforms to a predetermined standard structure.

The standard document consists of a plurality of sections and sub-sections, the start of which are indicated by section or sub-section headings respectively which are formatted in a heading style. The main part of the standard document consists of a two-dimensional table 300 with three columns and a plurality of rows delimited by a pair of textual items "DOC_TABLE" 302 (followed by a document name such as "ABC Policy Document 2") and "END_DOC" 304. This table is used to contain the known

information for possible inclusion in a customised document, the logical rules for determining the use made of the known information, any user guidance or references to user guidance, and variables representing further information to be captured.

The first column of the table contains known information for possible inclusion in the customised document, for example formatted text. The text may also include variables which are denoted by having double square brackets surrounding them, for example "[[The Insured]]" 306. The insertion of variables in certain positions in the standard document is used to create data-entry items for capturing information in corresponding positions in the information-capturing documents. Variables are used to indicate that further information may be captured to generate the customised document using the standard document. Variables may be inserted in either the first or second columns of the standard document (see below). When inserted in the first column, they indicate that the information captured will be used in substitution for the variable name if the known information unit is selected for inclusion in the customised document.

The second column of the table contains logical rules or expressions for determining how to use the known information of the first column. This will normally depend on further information to be captured before generating the customised document. Variables may be inserted in the second column to indicate that further information may be captured to determine whether one or

more corresponding known information units are to be selected for inclusion in the customised document. For example "Buildings" 308, which in this example is a Boolean variable (i.e. either true or false) represents whether or not buildings are included in the sums insured according to the insurance policy document. The further information may also be information represented by a variable already referred to in the first column of the table. Variables inserted in the second column do not need to be denoted by having double square brackets surrounding them.

Logical rules or expressions may be constructed from one or more variables, using Prolog statements containing logical and mathematical operators (such as AND, OR, IF, THEN, ELSE, NOT, +, -, x, ÷, =, Σ etc.), text and numbers. Valid logical rules are Boolean. For example, "Buildings OR Machinery OR Stock" 310 is true if at least one of the Boolean variables "Buildings", "Machinery" and "Stock" is true. The state of the expression (i.e. true or false) is used to determine whether or not to include, in the customised document, the information contained in one or more rows of the first column. For example, the state of the logical expression "Buildings OR Machinery OR Stock" which is next to the section headed "Sums Insured" 312 is used to determine whether or not the entire section headed "Sums Insured" (spanning two pages) is to be included in the customised document. The further logical expressions within the section (i.e. "^Buildings" 314; "^Machinery" 316; "^Stock AND Stock Level>=250000" 318; and "Stock

AND Stock Level<250000" 320) are used for further determining whether or not to include the sub-sections (i.e. "Buildings" 324; "Machinery" 326; "Stock (Expensive)" 328; and "Stock (Inexpensive)" 330 respectively).

When a variable occurs only once in the standard document at a particular point, data-entry items for capturing the further information represented by the variable are generated at a corresponding point in the information-capturing documents. Where, however, a variable occurs at more than one point in the standard document, and therefore there may be more than one corresponding point in any information-capturing document, the caret symbol "^" is used to indicate at which corresponding point in the information-capturing documents input means are to be generated to capture the further information.

The third column of the table contains user guidance relating to the information contained in the first column, the logical rules of the second column and/or how to input the further information required. For example, the user guidance "This section will only be included if at least ONE sum-insured is chosen" 322 describes how the logical expression "Buildings OR Machinery OR Stock" 310 determines whether or not to include the section "Sums Insured" 312 in the customised document. The third column may also contain text references to other user guidance such as book or journal references or embedded HTML code or JavaScript™ containing, for example, links to other Web pages.

The rows of the table are arranged so that the user guidance column of one row relates to the information contained in the first column and/or the logical rules of the second column in the same row. Similarly, the logical rule or expression of one row is used to determine whether or not to include, in the customised document, the information contained in the first column of the same row. Further, where the user guidance or logical rule are located on a row where the first column contains a section heading or sub-section heading (denoted by the use of RTF heading levels in the known information units in the first column), the user guidance or logical rule relates to the whole of the section or subsection respectively (that is, for all the rows below in the table until the row that contains an RTF heading at an equal or higher level).

Microsoft Word™ currently does not allow tables to be embedded in tables. Therefore, it is not possible directly to include a table in the known information contained in a the first column of the main table in the standard document. However, pointers to further tables may be used in the known information to get around this problem. The pointers are denoted by a table name surrounded by quotation marks with a hash symbol in front and further surrounding double square brackets, for example "[[# "ABC Address Table 2"]]" 332. Pointers points to further tables in the standard document which are delimited by a pair of textual items "DOC_" 334 (followed by the table name) and "END_DOC" 336. For example, the table pointed to by the above example is delimited by the pair of textual items "DOC_"ABC Address Table

2" " and "END_DOC". In this way, tables may be incorporated in the known information in the standard document, and thus in the generated customised document.

Standard documents may be created in a modular fashion by using, at the start of a standard document file, the "INCLUDE" command followed by the file name of a further document file, also in Microsoft Word™ format, to be incorporated. The contents of this further file may be a main table in three column form as above, part of a main table (i.e. a number of rows of a three column table), or objects such as picture files and OLE objects. The contents of further files may be inserted in a standard document file at a particular point by use of a pointer as described above. In this way, standard documents may be created from one or more standard modules. Furthermore, modules may themselves be created from one or more further modules. Modules may be nested in this way to any degree.

The standard document of Figure 5 also contains a further table, labelled "Question Table" 340, specifying further characteristics of the variables used in the main table. This table may be used define, for specified variables, the type of data-entry items used, the format of values they may hold, restrictions or rules for validity concerning the input of information to be held by variables (for example value ranges, or lists of selectable values), and default values. For example, the variables may be defined to hold text, numbers, currencies, dates or Boolean values. The data-entry items may be

specified as a text input line or box, a radio button, a number input line, a currency input line, a date input line, a time input line, a pop up menu with one or more options, a tick box, a scrollable menu list, and other such GUI data-entry items. Various dimensions (i.e. various amounts of space) may be specified for inputting the information.

The Question table may also specify control information to determine whether to allow input of information for a particular variable in a particular information-capturing document. For example, it may be specified that a data-entry item will only be provided in the first (or the first n) information-capturing documents generated, in which case end-users receiving the second (or (n+1)'th) information-capturing document or further information-capturing documents will not be provided with a data-entry item for inputting information for that variable. Alternatively, passwords may be specified without which input of information for a particular information-capturing document may not be carried out. In this way, the input of further information may be restricted to only some of the users receiving some of the information-capturing documents.

Furthermore, as mentioned above, some further information may be required to be captured before a customised document can be generated. The Question table may specify those variables, which represent the required further information, as being required variables. The document generation server program will not generate a customised document until information has

been captured for those variables. However, to promote generation of customised documents where not all the further information has been captured, the default status of a variable is that it is not required - i.e. it will be possible to generate a customised document even if the information represented by that variable has not been captured.

As well as the main table and optional further tables described above, the standard document may also include instructions specifying the contents and appearance of one or more different versions of information-capturing documents to be generated, and instructions for distributing the information-capturing documents to one or more users for capturing the further information required according to a predetermined work flow.

The instructions for controlling the distribution of information-capturing documents specify the version of the information-capturing document to be sent and an order for sending those documents in sequence. The sending instructions are delimited by a pair of main process instructions "SUB main()" 350 and "END SUB" 352. For example, the information-capturing document named "Client Data Form 1" may be sent by the instruction "SEND_PAGE "Client Data Form 1" " 354. A network or e-mail address for sending the information-capturing documents may be specified in these instructions. If not, the information-capturing documents will be sent to the client computer that initiated a session as described above. Alternatively, the instructions may specify that two or more different versions of

information-capturing documents are sent to two or more different specified network or e-mail addresses in parallel. In this case, the different versions of the information-capturing documents must be specified so as to capture mutually exclusive further information so as to prevent data conflict. The instructions are written in a programming language such as Visual Basic Script™.

The different versions of information-capturing documents are themselves defined by sections of HTML code and/or JavaScript™. The HTML code and/or JavaScript™ serves to define the contents of the information-capturing documents as well as their appearance. Standard HTML code for controlling common aspects of all the information-capturing documents such as titles, headers, colour schemes, graphic images, and tables may be specified in general page holder sections. The "PAGE Header" 360 and "PAGE Footer" 362 instructions may be used to demarcate these general page holder sections.

Further sections of HTML code and/or JavaScript™ are used to define the contents and appearance of particular information-capturing documents and are demarcated by an instruction of the form "PAGE" followed by the name given to the particular information-capturing document. For example, the contents and appearance of the information-capturing document named "Client Data Form 1" are defined in a section of HTML code demarcated by the instruction "PAGE "Client Data Form 1" " 364. The HTML code and/or

JavaScript™ may be used to specify which, if any, of the plurality of units of the standard document are to be included in the information-capturing document.

It is also possible to omit from a standard document instructions for generating different versions of the information-capturing documents, and/or instructions for distributing the documents according to a work flow. Where any of such instructions are omitted, a default set of instructions is used by document generation program 108. For example, where a standard document consists solely of the main three column table as described above, an information-capturing document comprising the first (known information) and third (user guidance) columns and all the rows of the main table plus appropriate data-entry items will be generated using default dimensions and GUI data-entry items, and sent to the client computer which initiated the session, using default HTML page holders.

Description of Information-Capturing Documents

Next, the structure and contents of two example information-capturing documents according to the present invention will be described in detail. Figures 6 (spanning 5 pages) and 7 (spanning 6 pages) show examples of two versions of information-capturing documents for use in generating customised insurance policy documents generated in accordance with the information contained in the example standard document of Figure 5. Figure 6 shows the information-capturing document generated from the section of

HTML code in the standard document of Figure 5 following the instruction "PAGE "Client Data Form 1" ". Similarly, Figure 7 shows the information-capturing document generated from the section of HTML code in the standard document of Figure 5 following the instruction "PAGE "Client Data Form 2" ".

Figure 6 shows an information-capturing document comprising a "Submit" button 400 and a table with three columns 402. The first column, headed "Clause Text" 404, contains all the known information units of the standard document of Figure 5 arranged in rows as in the table in the standard document. The second column 406, headed "Question", contains the names of the variables representing the further information to be captured for each respective row, section or subsection, and the third column 408, headed "Value" contains the respective data-entry items for inputting the further information. For example, on the first page of Figure 6, the cell 410 of the first column and fifth row contains the text "Herein "The Insured" is defined to be "[[*The Insured*]]" ". Correspondingly, the cells of the second and third columns of the same row contain the variable name "The Insured" 412 and a text box 414 for inputting the further information.

Figure 7 also shows an information-capturing document with a "Submit" button 500 and a table with three columns. The first column 502, headed "Logic", contains the logical rule units of the standard document and the third column 506, headed "Guidance", contains the user guidance units.

The second column 504, headed "Clause Input", contains all the known information units of the standard document together with data-entry items for inputting the further information. For example, on the third page of Figure 7, the cell 510 of the second column and seventh row contains the subsection heading "Earthquake (Europe / Asia)". Data-entry items for inputting the further information in the form of two tick boxes 514 and 516 and a pull-down list box 512 are provided. These correspond to the variables contained in the logical rule of the first column "Earthquake AND Buildings AND Region = Europe OR Region = Asia", i.e. the variables "Region" 512, "Earthquake" 514 and "Buildings" 516. Because the variables "Buildings" and "Region" occur at other points in the information-capturing document, the tick box and pull down list generated for them are generated at other points in the information-capturing document and are not repeated at cell 510.

Description of Customised Documents

Next, an example of a customised insurance policy document generated using the standard document of Figure 5 and the information-capturing documents of Figures 6 and 7 will be described. Figure 8 (spanning 5 pages) shows the customised document which has been generated in HTML format. Unlike the standard document or information-capturing documents, the customised document does not contain the tabular representation of known information, logical rules, user guidance, and/or data-entry items for inputting information. Instead, the customised document contains those units of known

information selected according to the logical rules on the basis of captured further information completed with further captured information. Both the text and the formatting of the known information units and captured information are represented in the customised document.

Modes of Use

Next, modes of using the translator program and document generation program 108 of the present invention will be described with reference to Figures 9 to 13. Figures 9 to 13 show the flow of programs, documents and information in the arrangement of computer systems and communication means as described above with reference to Figure 2.

Figure 9 shows how a standard document in Microsoft Word™ format 40 may be supplied by a user to client computer 30. The process of translating standard document 40 into Prolog source code program 42 is carried out using either client computer 30 or server computer 10. In the former case, the Prolog source code program 42 is then sent to server computer 10. In the latter case, the standard document 40 is first sent to server computer 10. Prolog source code program 42 is stored in data storage means of server computer 10. The standard document 40 may have been created or maintained using client computer 30. Alternatively, it may have been created or maintained using another computer and then supplied to client computer 30.

Figure 10 shows how document generation program 108 and Prolog source code program 42 are used, by a user of client computer 30, to generate

a customised document according to a first mode of use of the present invention. In this first mode, no distribution instructions have been included in the standard document nor have any instructions been included for generating different versions of information-capturing documents. The default response of document generation program 108 running on server computer 10 to a user request is to generate an information-capturing document for capturing the further information and to send it to the client computer that made the request.

A user of client computer 30 initiates a session with document generation program 108 of server computer 10 at step 50 by passing a URL request to server computer 10 specifying the file name of Prolog source code program 42. In response to this URL request, and on the basis of Prolog source code program 42, document generation program 108 generates an information-capturing document 44 which is sent from server computer 10 to client computer 30 at step 52. The user of client computer 30 may then enter some or all of the further information into information-capturing document 44 using a browser application. The user of client computer 30 then clicks on a "Submit" button in the information-capturing document and the captured further information is sent to server computer 10 at step 54. If all of the further information specified as being required further information has been sent, document generation program 108 will generate the customised document 48 and send a Web page to client computer 30 at step 56. If further information is required, document generation program 108 will generate a

further information-capturing document for capturing the further required information and send it to client computer 30. Thus, the process of steps 52 and 54 may be repeated until document generation program 108 has captured all the required information it needs to generate customised document 48.

Figure 11 shows how document generation program 108 and the Prolog source code program 42 are used, by a user of client computer 30, to generate a customised document according to a second mode of use of the present invention. In this second mode, instructions have been included in the standard document for sending two information-capturing documents to a client computer in sequence in response to a client request, a first information-capturing document for capturing information from the user of the requesting client computer, and a second information-capturing document for capturing information from a second user of an unspecified further computer. Instructions may also have been included defining the contents and appearance of the two information-capturing documents.

A user of client computer 30 initiates a session with document generation program 108 of server computer 10 at step 60 by passing a URL request to server computer 10 specifying the file name of Prolog source code program 42. In response to this URL request, and on the basis of Prolog source code program 42, document generation program 108 generates the first information-capturing document 44 which is sent from server computer 10 to client computer 30 at step 61. The user of client computer 30 may then enter

some or all of the further information into information-capturing document 44 using a browser application. The user of client computer 30 then clicks on a "Submit" button in the information-capturing document and the captured further information is sent to server computer 10 at step 62. Document generation program 108 will then generate the second information-capturing document 45 and send it to client computer 30 at step 63.

The user of client computer 30, knowing the e-mail address of the second user - i.e. the user of the unspecified further computer - who may provide further information, then clicks on a "Mail To" button in the second information-capturing document 45 to send, at step 64, the second information-capturing document 45 to the unspecified further computer as an e-mail attachment, for example, to computer 34. The user of client computer 30 is prompted for the e-mail address of the second user. Once having received information-capturing document 45, the second user then enters some or all further information using a browser application. The second user then clicks on a "Submit" button in information-capturing document 45 and the captured further information is sent to server computer 10 at step 65.

If all of the further information specified as being required further information has been sent, document generation program 108 will generate customised document 48 and send a Web page to client computer 30 at step 66. If further information is required, document generation program 108 will generate a further information-capturing document for capturing the further

required information and send it to client computer 30. Thus, the process of one or more of steps 61 to 65 may be repeated until document generation program 108 has captured all the required information it needs to generate the customised document 48.

Figure 12 shows how document generation program 108 and the Prolog source code program 42 are used, by a user of client computer 30, to generate a customised document according to a third mode of use of the present invention. In this third mode, instructions have been included in the standard document for sending three information-capturing documents to a client computer in response to a client request, a first information-capturing document for capturing information from the user of the requesting client computer, and second and third information-capturing documents for capturing information from the users of two further computers. Instructions have also been included defining the contents of the second and third information-capturing documents such that they each capture mutually exclusive further information. Instructions may also have been included defining the appearance of the three information-capturing documents.

A user of client computer 30 initiates a session with document generation program 108 of server computer 10 at step 70 by passing a URL request to server computer 10 specifying the file name of Prolog source code program 42. In response to this URL request, and on the basis of Prolog source code program 42, document generation program 108 generates the first

information-capturing document 44 which is sent from server computer 10 to client computer 30 at step 71. The user of client computer 30 my then enter some or all of the further information into information-capturing document 44 using the browser application. The user of client computer 30 then clicks on a "Submit" button in the information-capturing document and the information is sent to server computer 10 at step 72.

Document generation program 108 then generates the second and third information-capturing documents 45 and 46 for capturing further information and sends them to client computer 30 at step 73. The user of client computer 30 then clicks on a "Mail To" button in each of the two information-capturing documents, to send them to computers 36 and 32 as e-mail attachments at steps 74 and 75 respectively. The user of client computer 30 may or may not be required to specify the e-mail or network addresses of computers 36 and 32 depending on whether or not they have already been specified in the instructions contained in the standard document. Once having received information-capturing documents 45 and 46, the users of computers 32 and 36 may then enter some or all of the further information using browser applications. The users of computers 32 and 36 then click on "Submit" buttons in information-capturing documents 45 and 46 and the captured further information is sent to server computer 10 at steps 76 and 77 respectively. This process of capturing information from the users of computers 32 and 36 takes place in parallel. Document generation program

108 waits until it has received captured information from both computers 32 and 36 before generating a response to send to client computer 30. If all of the required information has been received, document generation program 108 generates customised document 48 and sends a Web page to client computer 30 at step 78. If further information is required, document generation program 108 generates a further information-capturing document for capturing the further required information and sends it to client computer 30. Thus, the process of capturing required information may be repeated until document generation program 108 has captured all the required information it needs to generate the customised document 48.

Figure 13 shows how document generation program 108 and the Prolog source code program 42 are used, by a user of client computer 30, to generate a customised document according to a fourth mode of use of the present invention. In this fourth mode, instructions have been included in the standard document for sending, in response to a client request, three information-capturing documents to three computers, the network or e-mail addresses of which have been specified, for capturing information from the users of those computers. Instructions have also been included for defining the contents of the three information-capturing documents such that they each capture mutually exclusive further information. Instructions may also have been included defining the appearance of the three information-capturing documents.

A user of client computer 32 initiates a session with document generation program 108 of server computer 10 at step 80 by passing a URL request to server computer 10 specifying the file name of Prolog source code program 42. In response to this URL request, and on the basis of Prolog source code program 42, document generation program 108 generates the three information-capturing documents 44, 45 and 46 which are sent from server computer 10 to computers 30, 34 and 36 at steps 81, 82 and 83 respectively. The user of client computer 32 is not required to specify the network or e-mail addresses of computers 30, 34 and 36 because they have already been specified in the instructions contained in the standard document.

Once having received information-capturing documents 44, 45 and 46, the users of computers 30, 34 and 36 may then enter some or all of the further information using browser applications. The users of computers 30, 34 and 36 then click on "Submit" buttons in information-capturing documents 44, 45 and 46 and the captured further information is sent to server computer 10 at steps 84, 85 and 86 respectively. This process of capturing information from the users of computers 30, 34 and 36 takes place in parallel. Document generation program 108 waits until it has received captured further information from all three computers 30, 34 and 36 before generating a response to send to client computer 32. If all of the required further information has been received, document generation program 108 will generate customised document 48 and send a Web page to client computer 32

at step 87. If further information is required, document generation program 108 will generate a further information-capturing document for capturing the further required information and send it to client computer 32. Thus, the process of capturing required information may be repeated until document generation program 108 has captured all the required information it needs to generate the customised document 48.

It will be apparent to the ordinarily skilled person that further embodiments of the present invention are possible.

In one further embodiment, the translator program is used as described above to generate Prolog source code documents from standard documents, and document generation program 108 is used to generate customised documents from standard documents and further information as described above. However, document generation program 108 is not used to generate information-capturing documents for capturing the further information. Instead, further information for generating a customised document is supplied to the server computer running document generation program 108 by sending URL requests to the server computer (or URL requests embedded in an e-mail sent to a router connected to the server computer as described above). The URL requests may be generated manually or by a further computer program arranged for that purpose.

In a further embodiment of the present invention the two-dimensional table of the first document presentation format comprises one or more rows

and three main columns: a first of said columns comprising only said known information units, a second of said columns comprising only said logical rule units, and the third of said columns comprising only said user guidance units, if any, as described above. However, each main column may comprise one or more sub-columns containing alternate known information units, logical rule units or user guidance units, if any, as appropriate; said sub-columns being arranged with corresponding alternate cells side by side. For example, in a standard document for generating customised contracts, there may be two or more known information sub-columns, each containing equivalent clauses for possible inclusion the customised document, but in two or more different languages. In another example, there may be two or more user guidance sub-columns, each containing user guidance intended for two or more different types of end-user - i.e. for end-users of different levels of skill or knowledge or one for clients and one for employees. Which sub-columns are used when generating the information-capturing documents and when generating the customised document may be determined by program instructions contained in the standard document and/or by user selection. Data specifying which sub-columns to use may be sent with the URL request initiating a session, or captured using information-capturing documents as described above. Alternatively, all sub-columns may be used when generating information-capturing documents and customised documents. Thus, in the case of the second example given above, an end-user browsing an information-capturing

document may be presented with two or more columns of different user guidance. Also, in the case of the first example given above, two or more customised documents may be generated in different languages.

In a further alternate embodiment of the present invention, the two-dimensional table of the first document presentation format is dispensed with. Instead, logic rules and user guidance items are embedded within paragraphs or sections of ordinarily formatted text. These items are denoted by surrounding square brackets, i.e. '[[....]]' and determine the use made of / relate to the paragraph or section in which they are embedded according to their formatting. If the embedded items are of normal paragraph formatting, they determine the use made of / relate to the paragraph in which they are embedded. If the embedded items are of heading formatting of a certain level, they determine the use made of / relate to the section headed by that heading level in which they are embedded - i.e. they determine the use made of / relate to the following part of the document until a second heading of the same or higher level is encountered.

The type of item embedded (i.e. logical rule or user guidance) is denoted by a leading character within the double square brackets - '!' indicates a logical rule will follow and '%' indicates that user guidance will follow. For example, '[[! STOCK LEVEL >= 250000]]', and '[[% This section is compulsory.]]'. Variables are embedded with double square brackets in the same way, but without a leading character, for example '[[

THE INSURED]]'. In addition, '=' indicates that a calculation will follow, for example '[[= FINISH DATE - START DATE + 1]]'. As with embodiments described above, the logical rules may be composed of full Prolog logic statements.

In a further alternate embodiment of the present invention, the known information units of the two-dimensional table of the first document presentation format may further include embedded items, as described above in the preceding alternate embodiment, such as logical rules. Furthermore, items may be embedded in the known information units where one or more of the main columns (i.e. known information units, logical rule units and user guidance units) comprises sub-columns containing alternate units.

Furthermore it will be apparent that a variety of further first and second document presentation formats (i.e. standard document formats and information-capturing document formats) may be used to implement the present invention and customised documents may be generated in various formats.

It will be apparent that various word processing applications may be used in place of Microsoft Word™, various browsing applications may be used in place of Microsoft Internet Explorer™, various browsing formats may be used in place of HTML (such as XML) and various operating systems, network programs and Web sever programs may be used in place of Microsoft

NT™, Novell Netware™, and Microsoft Internet Information Server™ respectively.

Furthermore, various programming languages or interpretable/ executable formats may be used for the translations of standard documents in place of Prolog, and various server programs may be used to process the translated programs in place of the ProWeb Server™ accordingly.

In a first variant of the embodiments described above, the translator program and Microsoft Word™ is run on one of the client computers 30, 32, 34 and 36. For example, client computer 30 runs the translator program and Microsoft Word™. In this case, a creator or maintainer of a standard document would first translate the Microsoft Word™ document file using the translator program on client computer 30 before sending the translated document file to server computer 10 for processing by document generation program 108. In a second variant, server computer 10 runs the translator program and Microsoft Word™ as well as document generation program 108. In this case, a creator or maintainer of a standard document using, for example, Microsoft Word™ on client computer 30, first sends the Microsoft Word™ document file to server computer 10 where it is then translated using the translator program. In a third variant, the translator program forms part of document generation program 108. In this case, a creator or maintainer of a standard document using, for example, Microsoft Word™ on client computer

30, first sends the Microsoft Word™ document file to server computer 10 where it is then translated using the translator component of document generation program 108.

Furthermore, it will be appreciated that one data processing means or various arrangements of two or more data processing means, connected by various communication means, may be used to implement the present invention. The arrangements of data processing means and communication means described with reference to Figures 1, 2, 9, 10, 11, 12 and 13 are merely illustrative.

Furthermore, it will be appreciated that various other modes of using the present invention are possible. The modes of use described with reference to Figures 10, 11, 12 and 13 are merely illustrative of possible modes of use.

Description of a Particular Implementation of the Invention in the Field of Contract Tendering

Contract tendering is widely used by parties wishing to select between a number of potential candidates who offer similar services or products. For example, a first party, hereafter called the Buyer, creates a document specifying its requirements and distributes this document, hereafter described as an Invitation To Tender (ITT), to a number of potential candidates, hereafter described as Suppliers. The ITT sets out a number of points which require a response from each of the Suppliers. Each of the Suppliers who wishes to tender for the contract provides responses to these points according to the type of service or product it can provide. The document which sets out a Suppliers' response to the ITT is called a Tender. Each Supplier who responds to the ITT sends its Tender to the Buyer, usually by a particular date which is the deadline for receiving tenders. Once the deadline has passed, the Buyer considers all the Tenders it has received from the Suppliers and selects one or possibly more of them to provide the service or product required. The selection process is largely based on the information provided in the Tenders. However, other information about the Suppliers not provided by the Suppliers themselves may also influence the Buyers selection. For each winning Supplier a contract is normally drawn up reflecting the information provided in the Tender, and is executed by the Buyer and Supplier to form a contract

for the provision of the services or product as required. The tendering process is then complete.

The present invention is particularly suitable for use in the tendering process and provides a means of automating, or partially automating, some or all of the stages involved as well as facilitating otherwise unfeasibly burdensome tasks to assist the administration of the process. This particular implementation of the present invention will now be described with reference to figures 14 to 25. By way of a brief overview, the present invention may be used by the Buyer to generate an ITT, to advertise or distribute the ITT to one or more Suppliers, to capture responses from those Suppliers, to generate a Tender for each responding Supplier, to generate report documents comparing the Suppliers' Tenders or information provided by Suppliers, to generate report documents setting out the stages reached in the tendering process, to generate contract documents between the Buyer and a selected Supplier or Suppliers, and to notify the Suppliers who responded of the outcome of their Tenders including, for the winning or shortlisted Suppliers, sending the contracts for execution, and receiving back the executed contracts.

It will be understood that the processes of generating standard documents, information-capturing documents and customised documents, as described above in the general description of the present invention, are used in this particular implementation for generating the various documents or notifications listed above. Client/server architecture over an intranet or the

Internet is used as described above. Furthermore, the advantages inherent in the present invention as described above are also advantages inherent in this particular implementation, in particular, the advantages of controlling, restricting, and/or validating data input, data presentation, including the provision of user guidance at the time of data entry, data capture from one or more sources or users in series or in parallel, and standardisation of user interfaces - i.e., the use of standard word processing, e-mail and web browser application.

Figures 14-18 show the steps taken by the Buyer to generate the ITT. A representative of the Buyer, hereafter called the User accesses the server system of the present invention from a client browser system. On selecting an option to generate a new ITT, the User is presented with an information-capturing Web page such as shown in figure 14. Table 600 is automatically generated by the server system and shows a reference number assigned to the new ITT, in this case 100000009, and a key-code which may be used for security purposes and which will be described in greater detail below. Table 602 is initially blank and provides data entry fields - 604, 606 and 608 - for the User to enter the title, description and number of response fields respectively for the new ITT to be generated. Push button 610 is provided for the User to click when he or she has finished entering data into the data entry items 604, 606 and 608.

Figure 15 shows the same Web page as Figure 14 after the User has entered the general information required concerning the new ITT. For example, the ITT is given the title "The Dandy ISA" and is a project to develop an Internet-based product which allows individuals to create and maintain their own personal ISA accounts. In particular, the user has entered "7" as the number of response fields required in the ITT. When the User has finished he or she clicks on the "Submit" push button 610 and the data entered is sent to the server system as described in detail above. In response, the server system generates a further information-capturing Web page as shown in Figure 16 which comprises 16a, 16b and 16c. Tables 600 and 602, containing the reference information and general information for the new ITT, are presented as before, save that table 602 no longer provides data entry items but merely the data previously entered by the User in an uneditable form. The Web page further presents seven input fields for entering response information. The number of tables 612 generated corresponds to the number of response fields specified by the User in the previous Web page. Each table 612 contains data entry items 614, 616, 618 and 620 which are, respectively, for entering field reference information, a field title, a field description and the type or style of data entry item to be used by the one or more suppliers when responding.

Figure 17, comprising 17a, 17b and 17c, shows the same Web page as Figure 16 after the User has entered specific information concerning the

response fields. For example, Field # 1, the User has entered "DANDY-01" as the field reference and "Proposer Name" as the title of the field, and "Please enter the name of the person responsible for this Tender" as the field description. Furthermore, the data-entry style has been selected to be an edit line. For other fields, different information has been provided. The information entered by the User is used to generate the ITT and, in particular, the title, description and style information entered, will determine the question name, user guidance and type of data entry item provided in the ITT.

Although not shown in Figures 16 and 17, the Web pages can be used to capture further information such as whether responses to particular fields are optional or mandatory, logical rules for controlling, restricting or validating data input using the specified data entry item corresponding to a particular field and logical rules linking the data input to a particular field to the mandatory or optional nature of one or more other fields and/or to logical rules for controlling, restricting or validating the data entered to one or more other particular fields, such as have been described above in detail. Furthermore, certain fields may be selected for special treatment when it comes to generating a report document comparing the tenders of a number of Suppliers. Also, points or weightings may be accorded to various responses to various fields for use in scoring the information provided or the overall Tenders when generating the same report.

Furthermore, although not shown in Figures 14 to 17, new ITTs may be generated on the basis of pre-existing templates containing standard response fields. For example, the ITT may be for a project which comes up for tender periodically and requires responses from tenderers to standard queries. A template information-capturing document may be generated specifying standard response fields and may be repeatedly used as the basis for creating a new ITT by adding new response fields or amending or deleting standard response fields as required.

When the User has finished entering the specific information concerning each of the fields, he or she clicks on push button 622 and the information entered is sent to the server system as described above. At this point, a customised document is generated which is the specification of the ITT. This document is generated in Microsoft Word (TM) RTF format and may be stored electronically, forwarded electronically and printed. The specification document is shown at Figure 18 comprising 18a, 18b and 18c.

In response to the submission of the required information for generating the ITT, the server system also generates an information-capturing Web page such as shown in Figure 23 and described in greater detail below. This information capturing Web page constitutes the ITT as presented to the Suppliers and allows them to provide their responses electronically. This information-capturing Web page, or a hyperlink URL linking to it, may be posted on a website accessible to the Supplier or Suppliers together with

further information concerning the project for tender if required. Alternatively, conventional media, such as printed publications, may be used to advertise the ITT together with the URL of the information-capturing Web page.

Alternatively, the Buyer may send the ITT directly to selected Suppliers by means of a conventional letter or e-mail. However, before the ITT may be sent to the Suppliers, the Buyer must provide the system with details of the Suppliers. On selecting an option to provide Supplier details, the User is presented with an information-capturing Web page such as shown in Figure 19. This Web page provides three data entry items, 630, 632 and 634, for input of the Supplier's company name, address and a contact name respectively. Once this information has been input by the User, he or she may click on push button 636 to submit the data to the server system. Figure 20 shows the same Web page after the User has entered the details of a particular supplier, namely ACME SOFTWARE PLC. The process of entering Supplier details may be repeated any number of times to provide details for any number of Suppliers. Also, further information may be entered by the User during the process, such as the e-mail address of Supplier contact person and other information which may be relevant to the Supplier. In particular, points or weighting information for assessing the Supplier's Tender based upon past experience or references from third parties may be entered.

The User may then select an option to generate a conventional printed letter or an e-mail for each of the Suppliers. For example, an e-mail may be generated for ACME SOFTWARE PLC as shown in Figure 21. The e-mail consists of a standard letter inviting the Supplier to tender for a project. Details of the project are provided in Table 640, including the project title, description, a reference unique to the Supplier and ITT project and a key code similarly unique to the Supplier and the ITT project and further described in detail below. The e-mail also contains the URL 642 corresponding to the information-capturing Web page generated for that particular Supplier. URL 642 is embedded in the e-mail as a hyperlink which the Supplier may simply click on to access the ITT information-capturing Web page.

When a Supplier accesses the information-capturing Web page, using a client browser application as described above, the server system generates a copy of the original information-capturing document for that particular Supplier, referenced by an identifier unique to the Supplier and reference number of the ITT itself. Thus, ITTs and responses thereto from Suppliers are uniquely identified for each Supplier and for each ITT. The Supplier-specific ITT and responses received by the server system are stored in the historical database of the server system.

Figure 22, comprising 22a and 22b, shows the ITT information-capturing Web page generated for ACME SOFTWARE PLC. The Supplier may access the Web page using a conventional client browser such as

Microsoft Internet Explorer 4, just as the Buyer would do. The information-capturing Web page sets out the general details concerning the ITT project, as well as the particular responses required of the supplier as specified by the Buyer. For example, at 650 the general details of the ITT project are set out, and at 652, 654 and 656 the title, description and a data entry item corresponding to field #1 are set out. A representative of the Supplier may enter information into the information-capturing Web page using the data entry boxes provided. For example, box 656 is a free form text entry box. Other data entry items may control, restrict or validate data entered by the Supplier in accordance with the type of data entry item or in accordance with logical rules entered by the Buyer at the stage of specifying the ITT as described above. Such means of controlling, restricting or validating the data input may be implemented using, as described above, Java (TM) or Java Script (TM) which would not be visible to the Supplier.

Figure 23, comprising 23a and 23b, shows the information-capturing Web page after a representative of the Supplier has entered the required information. When complete, the representative of the Supplier may click on push button 658 to submit the information to the server system. In response, the server system generates a Tender document for the particular Supplier and ITT project. This document may be generated in Microsoft Word (TM) RTF format and an example of such a document is shown at Figure 24, comprising 24a and 24b. This document may be stored electronically, forwarded

electronically and printed. The Tender document sets out the general details of the ITT project as well as the particular requests and responses provided by the Supplier. The Supplier's input data and, optionally, the Tender document is stored at the server system and also may be sent to the Supplier, to provide a record by, e-mail attachment.

As Suppliers access the server system and input their responses, a report or notification by e-mail may be sent at predetermined points by the server system to the User, or another specified representative of the Buyer, informing him or her of particular events or the stage in the tendering process which the Supplier has reached - for example, first successful access by Supplier; ITT partially completed; all mandatory fields completed; all fields completed; Tender made final and released to the Buyer, draft contract generated and sent to Supplier for evaluation, and accepted contract received from Supplier. Thus, the Buyer may track the progress of the tendering process for each Supplier. Alternatively, an option may be selected to generate a report on the progress of a number of Suppliers' Tenders at a point in time or automatically on the occurrence of predetermined events. This report would specify particular events that have occurred in the tendering process and the stage reached by each of a set of Suppliers who may include all the Suppliers sent the ITT directly and all those who have responded to the ITT by accessing the server system, or a selected subset of these. For example, if public or other competitive tendering rules apply to the tender, time limits are

set for the receipt of tenders. If the time limit had passed without receipt of any responses, a report could automatically be generated on the occurrence of this event which would notify the User, or another specified representative of the Buyer, of the failure of the process and would prompt the Buyer to re-advertise or re-notify the ITT.

Once the deadline for response has passed and at least Tender received, or once all the Tenders have been received, the Buyer may select an option to generate a report on the basis of the information provided by the Suppliers. Alternatively, the report may be generated automatically on the expiry of the time limit, and sent to the User, or another specified representative of the Buyer. An example of such a report is shown at Figure 25, comprising 25a, 25b, 25c, 25d and 25e. In short, the report sets out the general ITT project information as well as the particular requirements and responses of the various suppliers side by side. For example, the ITT project details are set out in table 664, the requirements for response field #1 are set out in table 666 and the responses of the various Suppliers to response field #1 are set out in table 668. Furthermore, document provides a table 660 for the Buyer to substitute a more meaningful and possibly shorter code for identifying the particular suppliers. Also, the document provides a tick box 662 for the Buyer to select the option of having spaces added after each field for adding comments or further queries, for the purpose of one or more persons reviewing many Tenders. If information is entered into either of

Table 660 or 662, and the "Reset" push button 674 is clicked on, then the Server regenerates the document in the format required. Input box 670 is provided for the Buyer to select a winning Supplier or two or more shortlisted Suppliers for whom to generate contracts for agreement. On clicking on the "Submit" push button 672, a standard contract is generated as described above, on the basis of the information provided by that particular Supplier and further information pre-stored by the Buyer, for example in a standard document as described above. Furthermore, in a variant of the present embodiment, notification documents, such as e-mails or conventional letters, may be generated for winning or losing Suppliers or both, notifying them of the outcome of their Tenders. Generated contracts may be sent to the winning Supplier or Suppliers by way of email attachment or as an enclosure in a conventional letter. E-mail notification documents may be sent to the Suppliers automatically.

Reports more complex than a simple side-by-side comparison of Supplier responses may be generated by the server system. For example, Suppliers' Tenders may be scored according to their responses and according to any points or weighting assigned to various possible responses and/or according to other information such as past expereince or references from third parties. Furthermore, Suppliers may be characterised as having met certain requirements or, as not having met those requirements. Furthermore,

other means of presenting the numerical information provided by the Suppliers may be used such as line or bar graphs, pie charts and other graphical representations. Alternatively, the winning Supplier or Suppliers may be selected wholly automatically on the basis of the scoring system, and presented to the User.

Because the information provided by the Buyer and by Suppliers in the tendering process may be confidential, and particularly because the Supplier may want to consider the responses to the ITT over time and may not wish the Buyer to have access to these partial responses until the whole Tender is complete, a security system is built into the process. The key codes set out in table 600 is used by representatives of the Buyer to access the ITT specification documents whilst they are being generated and to access the responses or reports on the responses of the Suppliers when they have been received. A further key-code as set out in table 640 is provided for each supplier to the ITT. This may be used by the Supplier when accessing the server system to release another two key-codes - one for allowing access to the server system for inputting some, or all of the information required in the ITT, the other for releasing the Tender, once all the required information has been input, to the Buyer. This approach provides a secure system in which the Supplier may submit partial responses to the server system without providing any information to the Buyer until the Tender is complete.

For further security, known methods of providing secure communications between client and server systems may be used, such as virtual private data network technology. Furthermore, data passing between the client and server systems may be encrypted using known methods.

Furthermore, it will be appreciated that submission of a Tender may have a legally binding effect on the Supplier, and that acceptance of a contract by the Supplier will need to evidenced in a non-repudiatable manner. Accordingly, it may be necessary for evidential purposes for a representative of the Supplier to sign a printed paper copy of the Tender and subsequent contract and physically mail it to the Buyer. Alternatively, known techniques of digitally signing electronic documents may be used to provide a mechanism where the supplier digitally signs the Tender, or contract, upon releasing or sending it to the Buyer.

It will be appreciated that the particular implementation relating to contract tendering described above may be implemented using the general system of generating customised documents of the present invention. Further, for better understanding, it may be noted that the particular implementation requires that the server system has the ability to make copies of generated information-capturing documents and generate new documents based on the information contained in and/or captured when generating previous customised documents. Thus, the Buyer need only specify one ITT and the required number of copies are generated for each Supplier accessing the server

system. Also, the report on Tenders received is generated on the basis of information captured using a number of information-capturing documents and, possibly, the documents containing the Supplier details. Furthermore, the ITT, and the contract which may be generated for winning or shortlisted Suppliers, may be generated on the basis of pre-existing standard form documents.

CLAIMS:

1. A method of using one or more data processing means to generate a customised document from a standard document stored in the form of data on data storage means, said standard document comprising:

i) data representing one or more units of known information for possible inclusion in said customised document;

ii) data representing one or more logical rule units, each of which determine, on the basis of information not contained in said standard document ('further information'), the use made of one or more of said known information units when generating said customised document ('determined known information units'); and

iii) data representing said further information,

said standard document data being in a first document presentation format in which each of said logical rule units and said determined known information units are associated with each other when said standard document is presented to a user.

2. A method according to claim 1, said method comprising the steps of using one or more data processing means to:

a) process said standard document data to generate data representing one or more documents for capturing at least part of said further information ('information-capturing documents'), said information-capturing document comprising means for inputting at least part of said further information by a user and said information-capturing document data being in a second document presentation format different to said first document presentation format;

b) process said information-capturing document data to generate said one or more information-capturing documents for presentation, in said second document presentation format, to one or more users and to capture, using said means for inputting information, data representing at least part of said further information from said one or more users; and

c) process said standard document data and said captured further information data to generate said customised document.

3. A method according to any preceding claim wherein said standard document further comprises data representing instructions for performing, using one or more data processing means, at least part of steps a), b), and c).

4. A method according to any preceding claim wherein steps a) and c) are performed using first data processing means, and step b) comprises the sub-steps of:

i) transmitting data representing one or more of said information-capturing documents from said first data processing means to one or more further data processing means using communications means,

ii) processing said transmitted data using said one or more further data processing means to generate said one or more information-capturing documents for presentation, in said second document presentation format, to one or more users and to capture, using said means for inputting information, data representing at least part of said further information from said one or more users; and

iii) transmitting said captured further information data from said one or more further data processing means to said first data processing means using communication means.

5. A method according to claim 4 wherein said information-capturing documents generated using said further data processing means comprise data representing instructions for performing sub-step b) iii).

6. A method according to claims 4 or 5 wherein said information-capturing documents generated using said further data processing means comprise data representing instructions for transmitting data representing said information-capturing document from said further data processing means to a second further data processing means using communications means

7. A method according to any preceding claim wherein said standard document further comprises data representing one or more user guidance units relating to one or more of said known information units and logical rule units ('related units'), and said first document presentation format is such that each of said user guidance units and said related units are associated with each other when said standard document file is presented to a user.

8. A method according to any preceding claim wherein said units of said standard document are presented to a user, in said first document presentation format, as a two-dimensional table with one or more rows and three columns: a first of said columns comprising only said known information units, a second of said columns comprising only said logical rule units, and the third of said columns comprising only said user guidance units, if any.

9. A method according to claim 8 wherein one or more of said columns of said two-dimensional table comprise one or more sub-columns comprising alternative known information units, alternative logical rule unit or alternative user guidance units respectively, said alternate units being arranged side by side in said columns.

10. A method according to any preceding claim wherein said information-capturing document data comprises data for controlling, restricting or validating, according to predetermined rules, the information captured from a user using one or more of said means for inputting information presented in one or more of said information-capturing documents.

11. A method according to claim 10 wherein at least part of said data for controlling, restricting or validating the information captured from a user is generated on the basis of said standard document.

12. A method according to any preceding claim wherein one or more of said information-capturing documents generated further comprise data representing one or more of said units of said standard document and, in said second document presentation format, each of said means for inputting

particular further information and said units comprising data representing said particular further information are associated with each other when said information-capturing documents are presented to a user.

13. A method according to claim 12 wherein said units comprised in said information-capturing documents are uneditable using said information-capturing documents.

14. A method according to claim 12 or 13 wherein, in said second document presentation format, each of said logical rule units, if any, and said determined known information units, if any, are associated with each other when said information-capturing documents are presented to a user.

15. A method according to any of claims 12 to 14 when dependent on claim 7 wherein, in said second document presentation format, each of said user guidance units, if any, and said related units, if any, are associated with each other when said information-capturing documents are presented to a user.

16. A method according to claim 14 or 15 wherein, in second document presentation format, said units and said means for inputting information are presented to a user as a two-dimensional table with one or

more rows and one to four columns, with known information units, if any, logical rule units, if any, and user guidance units, if any, contained in separate columns and said means for inputting information contained in one of said separate columns or in a further column.

17. A method according to claim 7 or any preceding claim dependent on claim 7 wherein one or more of said user guidance units comprises one or more references to further user guidance.

18. A method according to claim 17 wherein said references to further user guidance comprise an embedded uniform resource locator.

19. A method according to any preceding claim wherein said generated customised document is uneditable by a user.

20. A method according to any preceding claim wherein one or more of said known information units in said standard document comprise formatted text and those known information units included in said information-capturing documents and said generated customised document comprises identical text formatted at least partially identically.

21. A method according to any preceding claim wherein captured further information data, captured using a particular information-capturing document, is uniquely associated with the particular standard document, or particular version of a standard document, from which said particular information-capturing document was generated, and is not used to generate a customised document in combination with data representing a different standard document or a different version of the particular standard document.

22. A method according to any preceding claim wherein said standard document data is in a standard word-processing format.

23. A method according to any preceding claim wherein said information-capturing document data is in a standard browsing format.

24. A method according to any preceding claim wherein said standard document further comprises a further column of labelling units uniquely identifying each row of said table which permits addition of labelling units uniquely identifying added rows at interstices such that rows may be retraced even if reordered.

25. A method of creating, using data processing means, a standard document for carrying out the method of any preceding claim.

26. A method of generating, using data processing means, one or more information-capturing documents for carrying out the method of any of claims 1 to 24.

27. A method of presenting one or more information-capturing documents to one or more users and capturing information, using data processing means, for carrying out the method of any of claims 1 to 24.

28. A method of generating a customised document using one or more data processing means comprising the steps of:

a) creating a standard document, said standard document comprising:

i) known information for possible inclusion in said customised document,

ii) instructions for capturing further information, and

iii) instructions for generating said customised document using said known information and said further information,

b) on the basis of said instructions for capturing further information, generating one or more information-capturing documents,

c) capturing said further information using said one or more information-capturing documents, and

d) on the basis of said instructions for generating said customised document, generating said customised document using said known information and said captured further information.

29. A method of using one or more data processing means to generate a customised document from a standard document, said standard document comprising one or more items of known information and one or more logical rules for determining, on the basis of further information to be supplied or captured, the use made of one or more of said items of known information when generating said customised document.

30. A method according to claim 29 comprising the steps of using one or more data processing means to:

i) generate one or more information-capturing documents for capturing at least part of said further information, said information-capturing documents being generated on the basis of said standard document;

ii) capture at least part of said further information using said information-capturing documents; and

iii) generate said customised document on the basis of said captured further information and said standard document.

31. A method according to any preceding claim wherein the customised document is a specification of an invitation to tender.

32. A method according to any of claims 1 to 30 wherein the customised document is a document inviting a party to tender.

33. A method according to any of claims 1 to 30 wherein the customised document is a tender.

34. A method according to any of claims 1 to 30 wherein the customised document is a report based on one or more responses to invitations to tender or one or more tenders.

35. A method of using one or more data processing means to carry out at least part of a tendering process, said method comprising the steps of:

a) presenting a first user with one or more information-capturing documents;

b) capturing information from said first user using said one or more information-capturing documents;

c) generating a second information-capturing document for capturing information required to generate a tender on the basis of said information captured from said first user;

d) presenting a second user with said second information-capturing document;

e) capturing said information required to generate a tender document from said second user using said second information-capturing document;

f) generating a first tender document on the basis of said information captured from said second user.

36. A method according to claim 35, comprising the further step, performed after step c) and before step d), of generating a notification document for notifying the second user of an invitation to tender, said notification document being generated on the basis of the information captured from the first user and comprising data representing the location of the second information-capturing document.

37. A method according to claim 36, wherein the notification document is an e-mail for sending to the second user.

38. A method according to claim 36, wherein the notification document is web page for posting to a website accessible to said second user.

39. A method according to any of claims 36 to 38, wherein the data representing the location of said second information-capturing document is a uniform resource locator.

40. A method according to any of claims 35 to 39, comprising the following further step, which is performed after step f):

g) generating a contract document on the basis of said information captured from said second user.

41. A method according to any of claims 35 to 40, comprising the following further steps performed after step b):

cc) generating a third information-capturing document for capturing information required to generate a tender on the basis of said information captured from said first user;

dd) presenting a third user with said third information-capturing document;

ee) capturing said information required to generate a tender from said third user using said third information-capturing document;

ff) generating a second tender document on the basis of said information captured from said third user;

said method further comprising the following step performed after steps f) and ff):

gg) generating a first report document on the basis of said first and second tender documents or on the basis of information captured from said first, second or third users.

42. A method according to claim 41, wherein the first report document is generated automatically on the occurrence of a predetermined event in the tendering process.

43. A method according to any of claims 41 to 42, wherein the first report document presents information captured from the second and third users in response to corresponding requests in said second and third information-capturing documents, such that said corresponding information is associated when said report document is presented to a user.

44. A method according to any of claims 41 to 43, wherein the first report document presents numerical information captured from the first, second or third users in a graphical format.

45. A method according to any of claims 41 to 44, wherein the first report document provides scores comparing the information captured from the second and third users.

46. A method according to any of claims 41 to 45, wherein the first report document provides scores comparing the tenders of the second and third users.

47. A method according to any of claims 35 to 46, wherein a second report document is generated comprising information on the stage in the tendering process reached by the second or third user.

48. A method according to claim 47, wherein the second report document is generated automatically on the occurrence of an event in the tendering process.

49. A method according to claim 47 or claim 48, wherein the event in the tendering process is one selected from the following group: notification document generated; second information-capturing document presented to second user; information captured from the second user; all required information captured from second user; first tender document generated, contract document generated; time for response to invitation to tender expired.

50. A method according to any of claims 35 to 49, wherein a password is used by the second user to access the second information-capturing document at step e).

51. A method according to any of claims 35 to 50 wherein a password is used by the second user to release the information entered by said second user prior to proceeding to step f).

52. A method according to any of claims 35 to 51 wherein the one or more information-capturing documents and the second information-capturing document comprise data in a standard browsing format.

53. A method according to any of claims 35 to 52, wherein steps a), aa), b), bb), d), dd), e), and ee), if performed, are performed using browser application software.

54. A method according to any of claims 35 to 53, wherein steps c), cc), f), ff), g) and gg), if performed, are performed using web server application software.

55. A method according to any one of claims 35 to 54, wherein, if generated, any of the one or more information-capturing documents, the second information-capturing document, and the third information-capturing document, is or are generated using the method of generating information-capturing documents according to any of claims 2 to 24, 28 and 30.

56. A method according to any one of claims 35 to 55, wherein, if generated, any of the first and second tender documents, the notification document, the first and second report documents, and the contract document, is or are generated using the method of any of claims 1 to 24, and 28 to 30.

57. A computer program or computer programs for performing the method of any preceding claim.

58. A computer program or computer programs according to claim 55 held on a data carrier.

59. Apparatus for performing the method of any of claims 1 to 56.

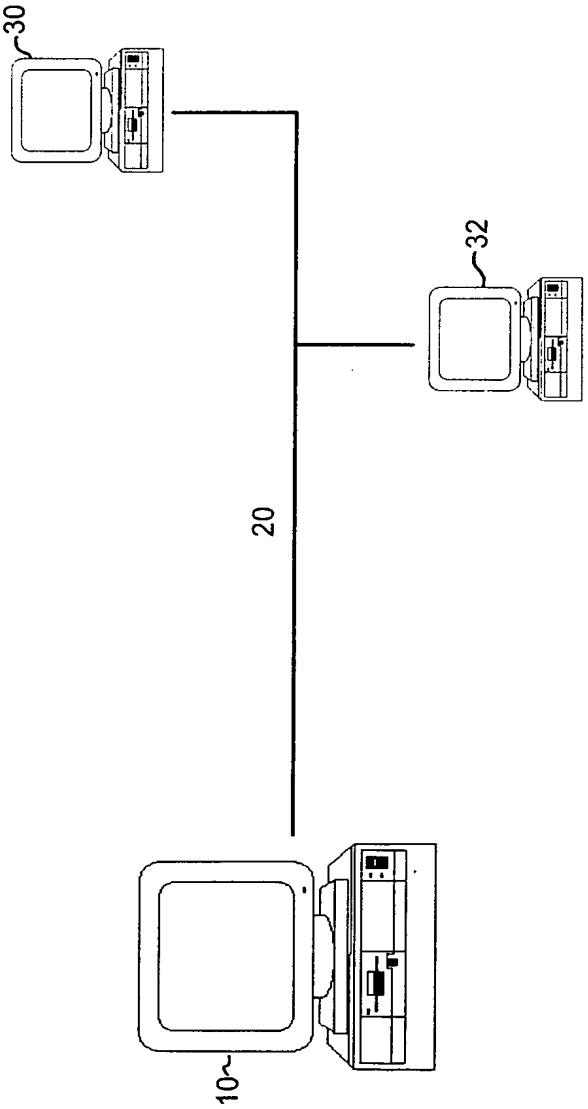


FIG. 1a

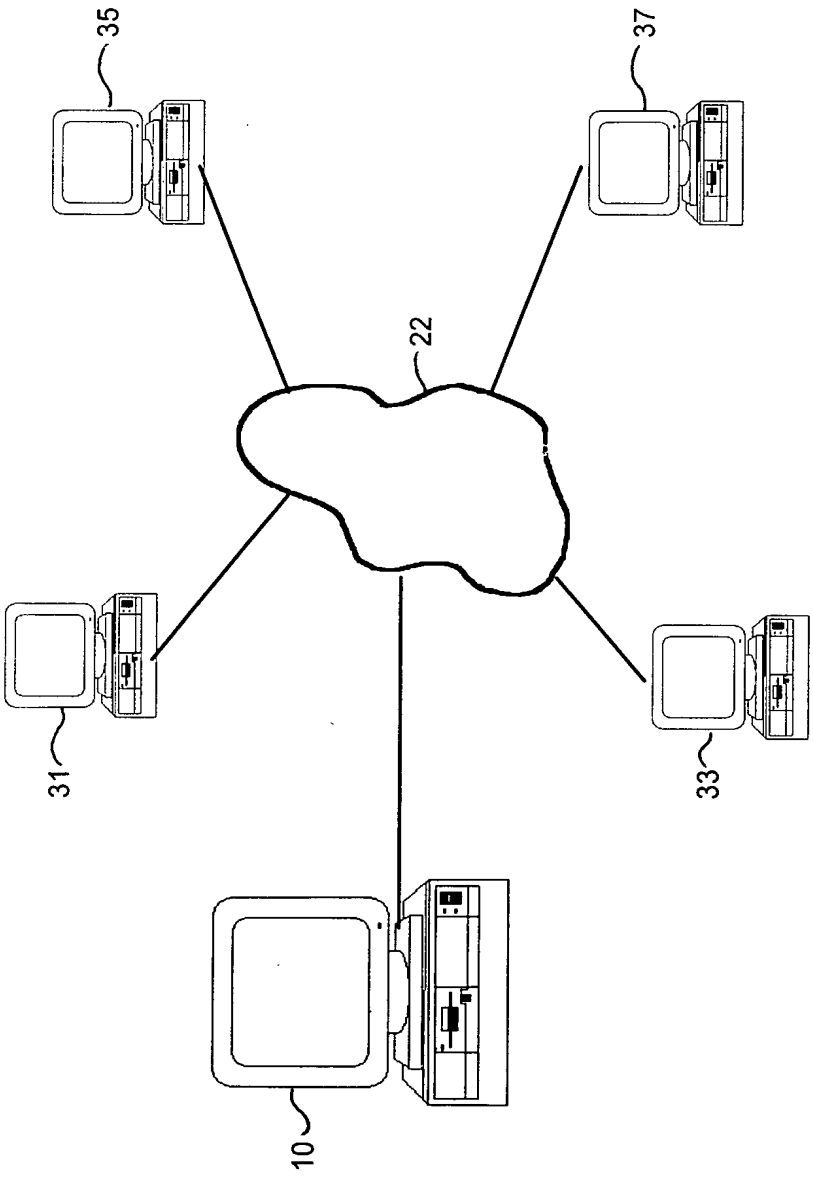


FIG. 1b

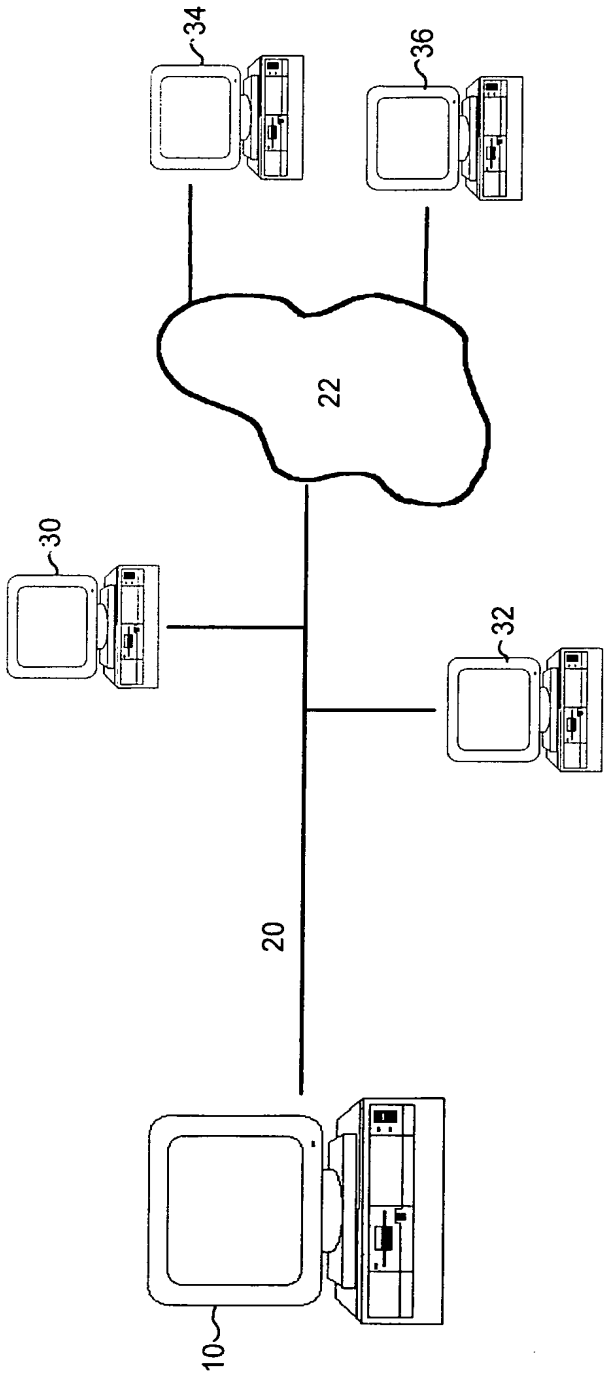


FIG. 2

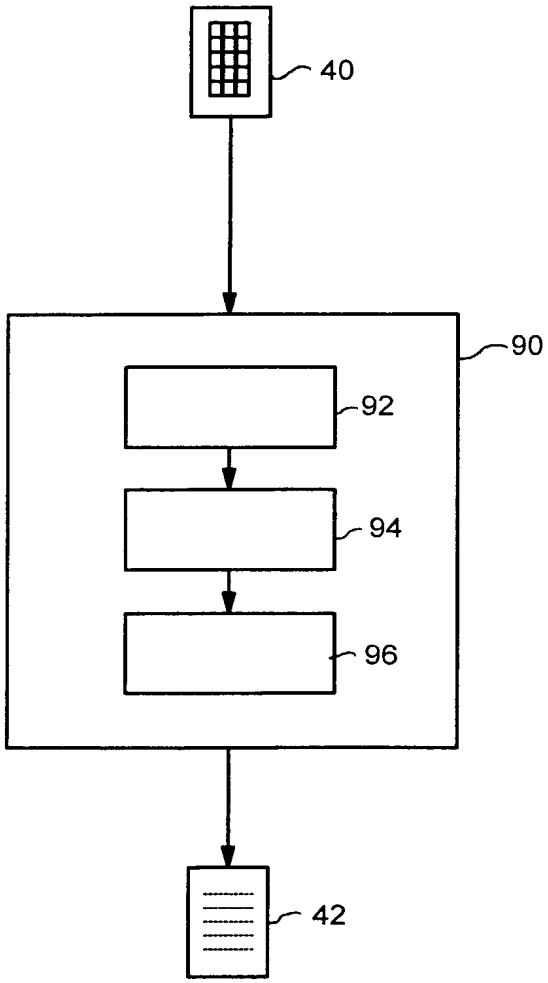


FIG. 3

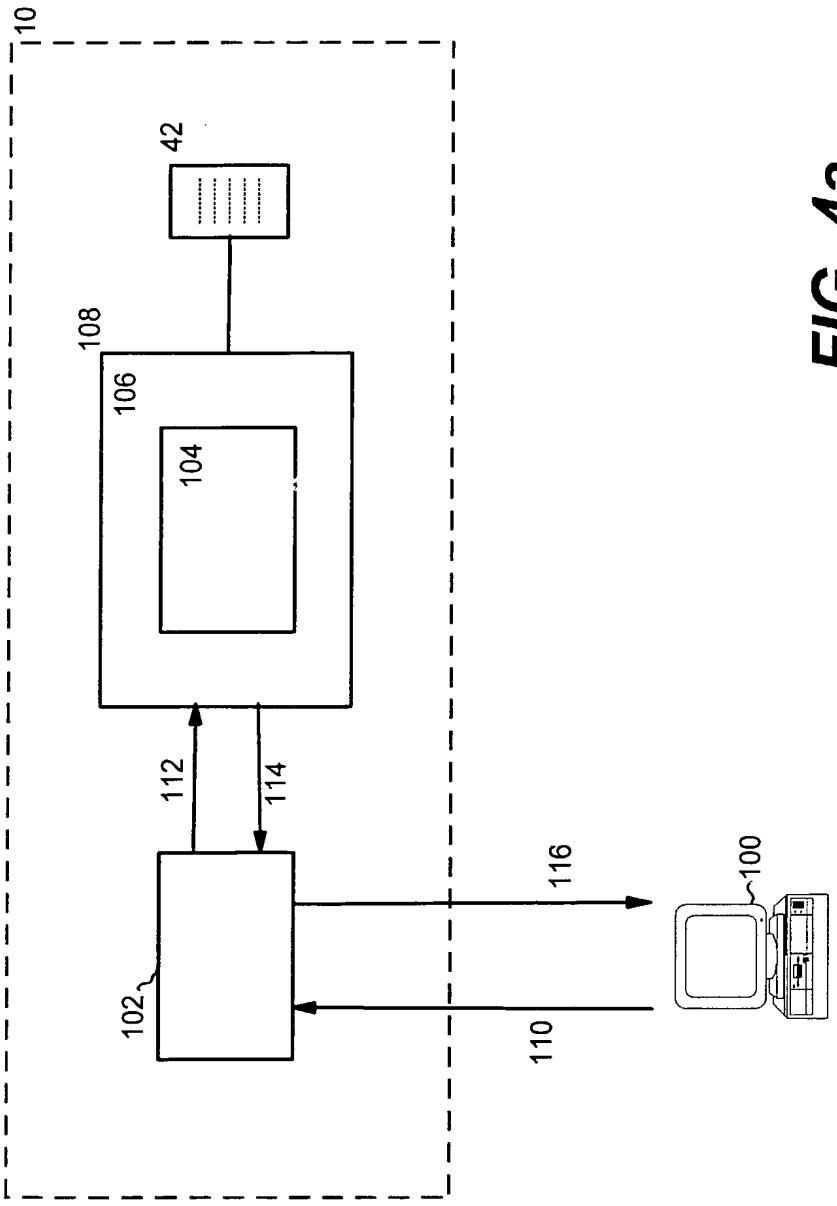
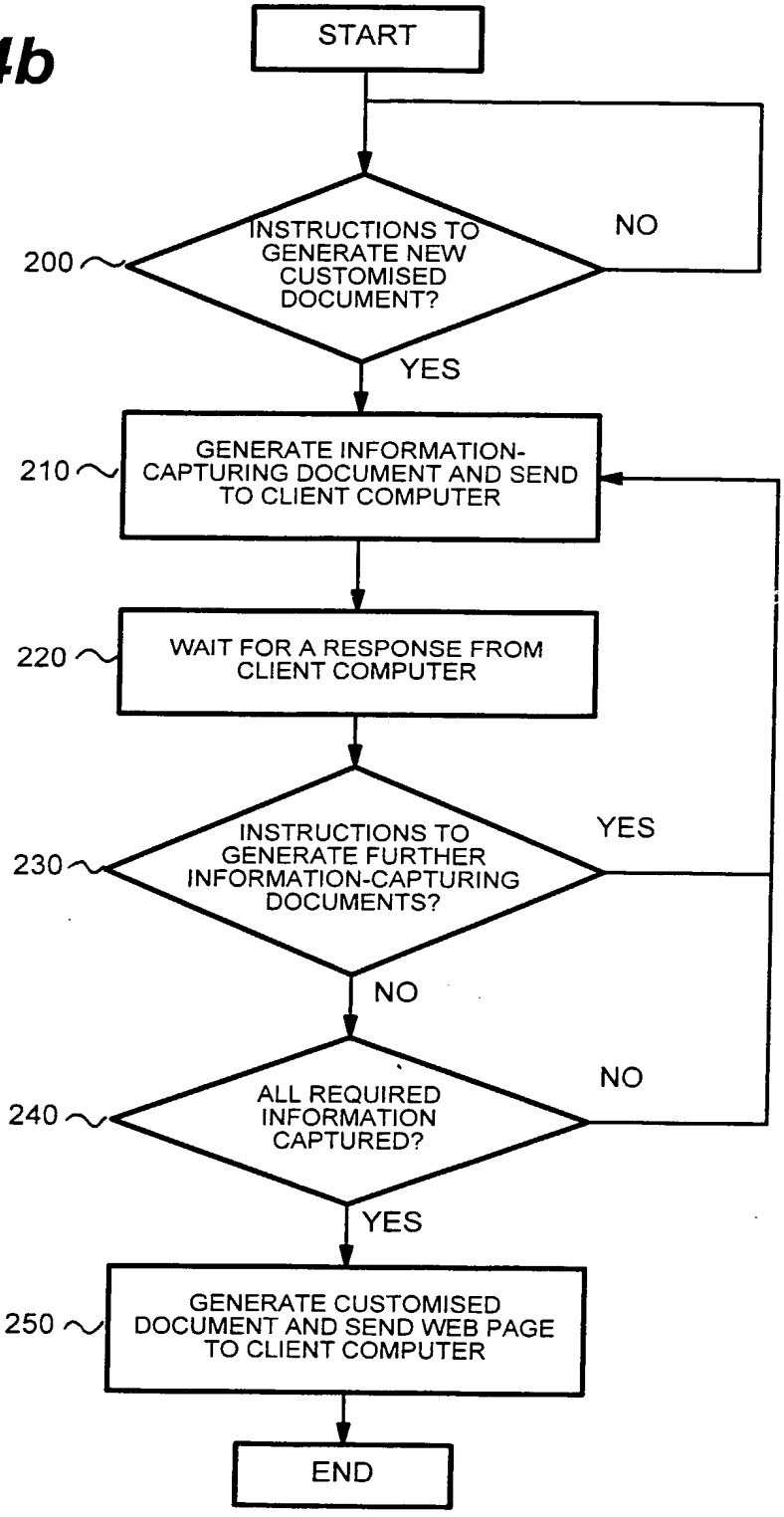


FIG. 4a

FIG. 4b


START
200
INSTRUCTIONS TO GENERATE NEW CUSTOMISED DOCUMENT?
NO
YES
210
GENERATE INFORMATION-CAPTURING DOCUMENT AND SEND TO CLIENT COMPUTER
220
WAIT FOR A RESPONSE FROM CLIENT COMPUTER
230
INSTRUCTIONS TO GENERATE FURTHER INFORMATION-CAPTURING DOCUMENTS?
YES
NO
240
ALL REQUIRED INFORMATION CAPTURED?
NO
YES
250
GENERATE CUSTOMISED DOCUMENT AND SEND WEB PAGE TO CLIENT COMPUTER
END

DOC_TABLE "ABC Policy Document 2" ~ 302

300

Definitions		This section is compulsory
The Company		
Herein "**The Company**" is defined to be "ABC Insurance".		
The Insured		
Herein "*The Insured*" is defined to be "[[The Insured]]". ~ 306		
The Address		
[[# "ABC Address Table 2"]] ~ 332		
Herein "The Address" of "The Insured" is defined to be :- [[= Address Street]] [[= Address Town]] [[= Address County]] [[= Address Post Code]]		

FIG. 5a

312 Sums Insured	Buildings OR Machinery OR Stock	*This section will only be included if at least ONE sum-insured is chosen!*
Buildings 324	^Buildings 314	
Buildings including (a) Landlord's fixtures and fittings therein and thereon. (b) Professional fees. (c) Removal of debris.		
Machinery 326	^Machinery 316	
Machinery, plant and all other contents (excluding landlord's fixtures and fittings, stock and property more specifically insured) the property of the Insured or held by them in trust for which they are responsible including (a) Tenants improvements and interior decorations. (b) Professional fees. (c) Removal of debris.		
Stock (Expensive) 328	^Stock AND Stock Level >= 250000 318	
Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.		

310 308 322

FIG. 5b

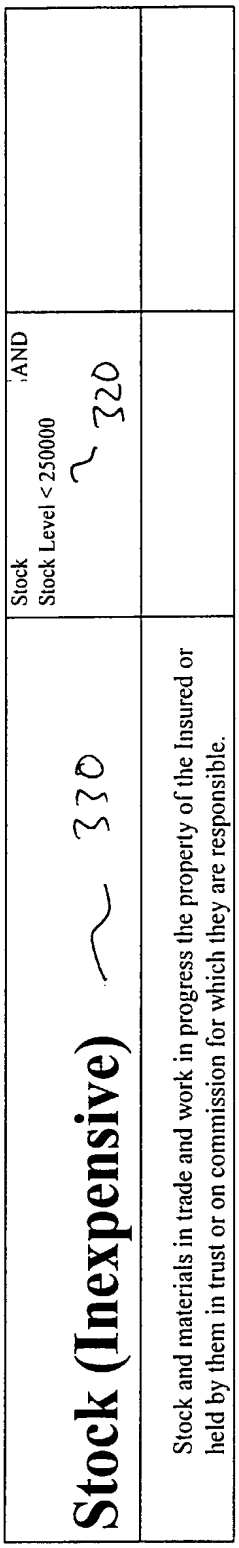

Stock (Inexpensive)
330
Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.
Stock
Stock Level < 250000
AND
320

FIG. 5c

Perils To Be Insured Against	^Region <> Asia	*Always included except for Asia!*
Accident	Accident AND Machinery OR Stock Level >= 100000	
Accidents but excluding (a) Damage occassioned by negligence.		
Burst Pipes	Burst Pipes AND Machinery	
Burst pipes or overflowing of water tanks apparatus or pipes but excluding damage by water discharged or leaking from any automatic sprinkler installation(s).		
Earthquake (Europe / Asia)	Earthquake AND Buildings AND Region = { Europe OR Asia }	
Earthquake but excluding (a) Damage occassioned by aftershocks.		

FIG. 5d

Earthquake (USA / Africa)	Earthquake AND Buildings AND Region = { USA OR Africa }	
Earthquake but excluding (a) Damage occassioned by aftershocks.		
Explosion (Europe)	Explosion AND Region = Europe	
Explosion but excluding (a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured. (b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.		
Explosion (Rest Of World)	Explosion AND Region <> Europe	
Explosion but excluding (a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured. (b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.		

FIG. 5e

Fire (Included)	Fire	
Fire (whether resulting from explosion or otherwise) but excluding (a) Explosion occassioned by fire. (b) Earthquake or subterranean fire. (c) Damage occasion by (i) Its own spontaneous fermentation heating or combustion (ii) Its undergoing any process involving the application of heat (d) Lightning.		
Fire (Excluded)	ELSE	
Fire is specifically excluded.		
Theft	Theft AND Machinery OR Stock Level >= 100000	
Theft but excluding (a) Theft by a relative friend acquaintance or other person known to the Insured.		

FIG. 5f

Warranties Undertaken By The Insured		*This section is compulsory*
Fire Alarm	Fire Alarm AND Fire	
It is warranted and the Insured hereby undertake in consideration of the discount granted for the Automatic Fire Alarm installation to make a test at least once a week for the purposes of ascertaining the condition of (a) the batteries (b) the Brigade connection N.B. As regards (b) where the Brigade have given a written undertaking to carry out the test the Insured's responsibility will be confined to requirement (a) only.		
Fire Extinguishers	Fire Extinguishers AND Fire	
It is warranted and the Insured hereby undertake in consideration of a discount which has been allowed off the premium for approved fire extinguishing appliances kept or situate on the premises to cause an inspection of the appliances to be made every week for the purpose of ascertaining that they are in all respects maintained in proper working order.		

FIG. 5g

Sprinklers	Sprinklers AND Fire	
It is warranted and the Insured hereby undertake in consideration of the discount and/or reduced rate granted for the Automatic Sprinklers to make a test every week for the purpose of ascertaining that the alarm gong is in working order and that the stop valves controlling the individual water supplies and the installation are fully open.		
Intruder Alarm	Intruder Alarm Theft AND Machinery	
It is warranted that the Intruder Alarm installed at the Premises the specification for which has been seen and agreed by the Company shall be in operation out of business hours.		

END DOC

304

FIG. 5h

DOC "ABC Address Table 2" ~ 334

PART	VALUE
Street / Town / County:	[[Address Street]] [[Address Town]] [[Address County]]
Post Code	[[Address Post Code]]
Gross Income:	**[[Income]]**
Expenditure:	[[Expenditure]]
Spending Power:	*[[= Income - Expenditure]]*

END DOC ~ 336

FIG. 5i

Questions ~340

TABLE QUESTION

NAME	ONCE	STYLE	FORMAT	RANGE	DEFAULT	LIST
The Insured		textline	20		Logic Programming Associates	
Address Street		textbox	20 * 3		Studio 4 R.V.P.B. Trinity Road	
Address Town		Textline			London	
Address County		Textline	20		Wandsworth	
Address Post Code		textline	20		SW18 3SX	

FIG. 5j

Control Mechanism

350

```
SUB main()
    SEND_PAGE "Client Data Form 1"   354
    SEND_PAGE "Client Data Form 2"
    SEND_PAGE "Personal Policy Document"
END SUB   352
```

PAGE Header(Title AS STRING) 360

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<HTML> <HEAD> <TITLE> Test B - Title </TITLE> </HEAD> <BODY BGCOLOR="#C0C0C0"> <FORM>
<H1><U>ScaffoldIT™ - Title </U></H1>
```

PAGE Footer 362

```
</FORM> </BODY> </HTML>
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PAGE "Client Data Form 1" 364

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<TABLE BORDER=4 CELLSPACING=4 CELLPADDING=8><TR><TH> Clause Text </TH><TH> Question </TH><TH> Value </TH></TR>
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</TABLE>
<!PAGE=Footer>
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PAGE "Client Data Form 2"

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</TABLE>
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PAGE "Personal Policy Document"

```
<!PAGE=Header PARAM="Personal Policy Document">
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FIG. 5k

```
<!DOC2RTF ="ABC Policy Document 2" PARAM=AUTONUMBER> <BR><BR><BR><BR>
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FIG. 5I

Client Data 1

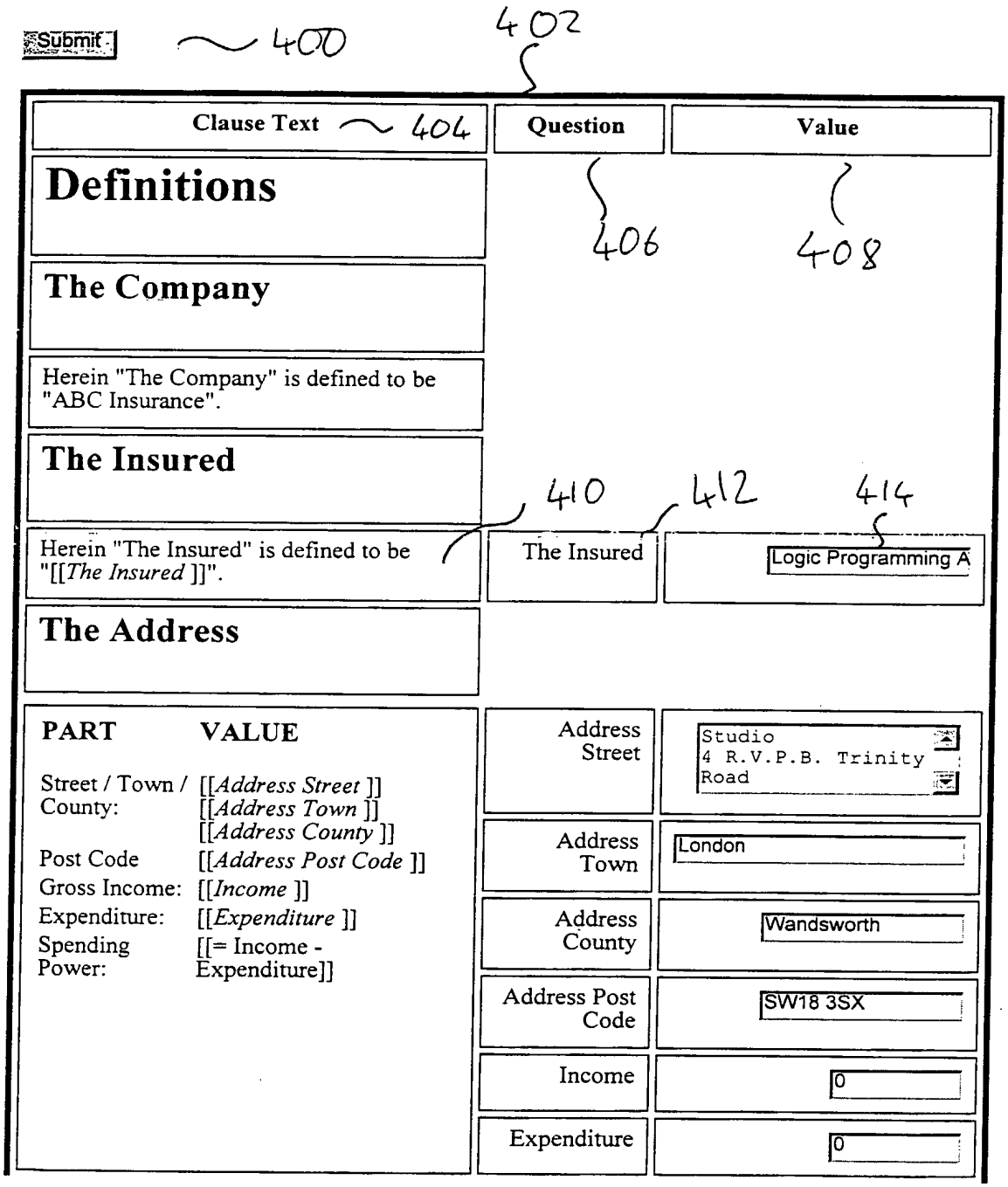

FIG. 6a

Herein "The Address" of "The Insured" is defined to be :- [[= Address Street]] [[= Address Town]] [[= Address County]] [[= Address Post Code]]		
Sums Insured		
Buildings	Buildings	☑
Buildings including (a) Landlord's fixtures and fittings therein and thereon. (b) Professional fees. (c) Removal of debris.		
Machinery	Machinery	☑
Machinery, plant and all other contents (excluding landlord's fixtures and fittings, stock and property more specifically insured) the property of the Insured or held by them in trust for which they are responsible including (a) Tenants improvements and interior decorations. (b) Professional fees. (c) Removal of debris.		
Stock (Expensive)	Stock	☑
	Stock Level	0
Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.		
Stock (Inexpensive)		
Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.		
Perils To Be Insured Against	Region	Africa

FIG. 6b

Accident	Accident	☑
Accidents but excluding (a) Damage occassioned by negligence.		
Burst Pipes	Burst Pipes	☑
Burst pipes or overflowing of water tanks apparatus or pipes but excluding damage by water discharged or leaking from any automatic sprinkler installation(s).		
Earthquake (Europe / Asia)	Earthquake	☑
Earthquake but excluding (a) Damage occassioned by aftershocks.		
Earthquake (USA / Africa)		
Earthquake but excluding (a) Damage occassioned by aftershocks.		
Explosion (Europe)	Explosion	☑
Explosion but excluding (a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured. (b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.		
Explosion (Rest Of World)		

FIG. 6c

Explosion but excluding (a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured. (b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.		
Fire (Included)	Fire	☑
Fire (whether resulting from explosion or otherwise) but excluding (a) Explosion occassioned by fire. (b) Earthquake or subterranean fire. (c) Damage occasion by (i) Its own spontaneous fermentation heating or combustion (ii) Its undergoing any process involving the application of heat (d) Lightning.		
Fire (Excluded)		
Fire is specifically excluded.		
Theft	Theft	☑
Theft but excluding (a) Theft by a relative friend acquaintance or other person known to the Insured.		
Warranties Undertaken By The Insured		
Fire Alarm	Fire Alarm	☑
It is warranted and the Insured hereby undertake in consideration of the discount granted for the Automatic Fire Alarm installation to make a test at least once a week for the purposes of ascertaining the condition of (a) the batteries (b) the Brigade connection N.B. As regards (b) where the Brigade have given a written undertaking to carry out the test the		

FIG. 6d

Insured's responsibility will be confined to requirement (a) only.		
Fire Extinguishers	Fire Extinguishers	☑
It is warranted and the Insured hereby undertake in consideration of a discount which has been allowed off the premium for approved fire extinguishing appliances kept or situate on the premises to cause an inspection of the appliances to be made every week for the purpose of ascertaining that they are in all respects maintained in proper working order.		
Sprinklers	Sprinklers	☑
It is warranted and the Insured hereby undertake in consideration of the discount and/or reduced rate granted for the Automatic Sprinklers to make a test every week for the purpose of ascertaining that the alarm gong is in working order and that the stop valves controlling the individual water supplies and the installation are fully open.		
Intruder Alarm	Intruder Alarm	☑
It is warranted that the Intruder Alarm installed at the Premises the specification for which has been seen and agreed by the Company shall be in operation out of business hours.		

FIG. 6e

Client Data 2

Submit ~ 500 504

Logic	Clause Input	Guidance
502	**Definitions**	*This section is compulsory*
	The Company	506
	Herein "The Company" is defined to be "ABC Insurance".	
	The Insured	
	Herein "The Insured" is defined to be "Logic Programming A ".	
	The Address	

PART	VALUE
Street / Town / County:	Studio 4 R.V.P.B. Trinity Road London Wandsworth
Post Code	SW18 3SX
Gross Income:	0
Expenditure:	0
Spending Power:	0

FIG. 7a

	Herein "The Address" of "The Insured" is defined to be :- Studio 4 R.V.P.B. Trinity Road London Wandsworth SW18 3SX	
Buildings **OR** *Machinery* **OR** *Stock*	**Sums Insured**	*This section will only be included if at least ONE sum-insured is chosen!*
Buildings	☑ ~ 516 **Buildings**	
	Buildings including (a) Landlord's fixtures and fittings therein and thereon. (b) Professional fees. (c) Removal of debris.	
Machinery	☑ **Machinery**	
	Machinery, plant and all other contents (excluding landlord's fixtures and fittings, stock and property more specifically insured) the property of the Insured or held by them in trust for which they are responsible including (a) Tenants improvements and interior decorations. (b) Professional fees. (c) Removal of debris.	
Stock **AND** *Stock Level* >= 250000	☑ 0 **Stock (Expensive)**	
	Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.	
Stock **AND** *Stock Level* < 250000	**Stock (Inexpensive)**	

FIG. 7b

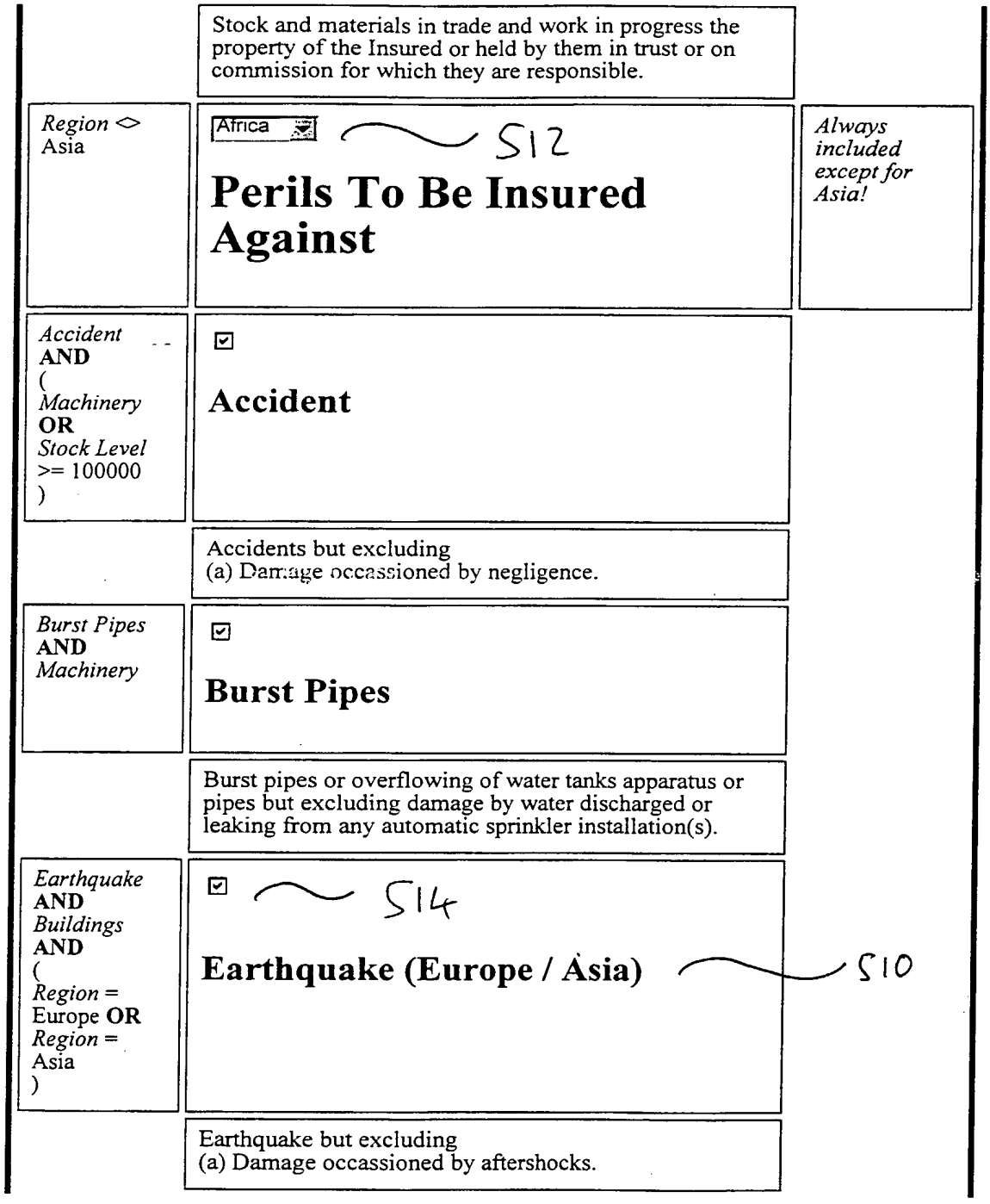
Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.
Region <> Asia
Africa
S12
Perils To Be Insured Against
Always included except for Asia!
Accident AND (Machinery OR Stock Level >= 100000)
Accident
Accidents but excluding (a) Damage occassioned by negligence.
Burst Pipes AND Machinery
Burst Pipes
Burst pipes or overflowing of water tanks apparatus or pipes but excluding damage by water discharged or leaking from any automatic sprinkler installation(s).
Earthquake AND Buildings AND (Region = Europe OR Region = Asia)
S14
Earthquake (Europe / Asia)
S10
Earthquake but excluding (a) Damage occassioned by aftershocks.

FIG. 7c

Earthquake **AND** *Buildings* **AND** (*Region* = USA **OR** *Region* = Africa)	**Earthquake (USA / Africa)**
	Earthquake but excluding (a) Damage occassioned by aftershocks.
Explosion **AND** *Region* = Europe	☑ **Explosion (Europe)**
	Explosion but excluding (a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured. (b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.
Explosion **AND** *Region* <> Europe	**Explosion (Rest Of World)**
	Explosion but excluding (a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured. (b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.
Fire	☑ **Fire (Included)**
	Fire (whether resulting from explosion or otherwise) but excluding (a) Explosion occassioned by fire. (b) Earthquake or subterranean fire. (c) Damage occasion by (i) Its own spontaneous fermentation heating or combustion (ii) Its undergoing any process involving the application of heat (d) Lightning.

FIG. 7d

NOT *Fire*	**Fire (Excluded)**	
	Fire is specifically excluded.	
Theft **AND** (*Machinery* **OR** *Stock Level* >= 100000)	☑ **Theft**	
	Theft but excluding (a) Theft by a relative friend acquaintance or other person known to the Insured.	
	Warranties Undertaken By The Insured	*This section is compulsory*
Fire Alarm **AND** *Fire*	☑ **Fire Alarm**	
	It is warranted and the Insured hereby undertake in consideration of the discount granted for the Automatic Fire Alarm installation to make a test at least once a week for the purposes of ascertaining the condition of (a) the batteries (b) the Brigade connection N.B. As regards (b) where the Brigade have given a written undertaking to carry out the test the Insured's responsibility will be confined to requirement (a) only.	
Fire Extinguishers **AND** *Fire*	☑ **Fire Extinguishers**	
	It is warranted and the Insured hereby undertake in consideration of a discount which has been allowed off the premium for approved fire extinguishing appliances kept or situate on the premises to cause an inspection of the appliances to be made every week for the purpose of ascertaining that they are in all respects maintained in proper working order.	

FIG. 7e

Sprinklers **AND** *Fire*	☑ **Sprinklers**
	It is warranted and the Insured hereby undertake in consideration of the discount and/or reduced rate granted for the Automatic Sprinklers to make a test every week for the purpose of ascertaining that the alarm gong is in working order and that the stop valves controlling the individual water supplies and the installation are fully open.
Intruder Alarm **AND** *Theft* **AND** *Machinery*	☑ **Intruder Alarm**
	It is warranted that the Intruder Alarm installed at the Premises the specification for which has been seen and agreed by the Company shall be in operation out of business hours.

FIG. 7f

1 Definitions

1.1 The Company

Herein "**The Company**" is defined to be "ABC Insurance".

1.2 The Insured

Herein "*The Insured*" is defined to be "Logic Programming Associates".

1.3 The Address

1.3.1 PART	1.3.2 VALUE
Street / Town / County:	Studio 4 R.V.P.B. Trinity Road London Wandsworth
Post Code	SW18 3SX
Gross Income:	**0**
Expenditure:	0
Spending Power:	*0*

Herein "The Address" of "The Insured" is defined to be :-
Studio 4R.V.P.B.Trinity Road
London
Wandsworth
SW18 3SX

FIG. 8a

2 Sums Insured

2.1 Buildings

Buildings including
(a) Landlord's fixtures and fittings therein and thereon.
(b) Professional fees.
(c) Removal of debris.

2.2 Machinery

Machinery, plant and all other contents (excluding landlord's fixtures and fittings, stock and property more specifically insured) the property of the Insured or held by them in trust for which they are responsible including
(a) Tenants improvements and interior decorations.
(b) Professional fees.
(c) Removal of debris.

2.3 Stock (Inexpensive)

Stock and materials in trade and work in progress the property of the Insured or held by them in trust or on commission for which they are responsible.

FIG. 8b

3 Perils To Be Insured Against

3.1 Accident

Accidents but excluding
(a) Damage occassioned by negligence.

3.2 Burst Pipes

Burst pipes or overflowing of water tanks apparatus or pipes but excluding damage by water discharged or leaking from any automatic sprinkler installation(s).

3.3 Earthquake (USA / Africa)

Earthquake but excluding
(a) Damage occassioned by aftershocks.

3.4 Explosion (Rest Of World)

Explosion but excluding
(a) Damage occassioned by the bursting of a boiler economiser or other vessell machine or apparatus in which internal pressure is due to steam only and belonging to or under the control of the Insured.
(b) Damage to or of vessells machinery or apparatus or their contents resulting from the explosion thereof.

3.5 Fire (Included)

Fire (whether resulting from explosion or otherwise) but excluding
(a) Explosion occassioned by fire.
(b) Earthquake or subterranean fire.
(c) Damage occasion by
(i) Its own spontaneous fermentation heating or combustion
(ii) Its undergoing any process involving the application of heat

FIG. 8c

(d) Lightning.

3.6 Theft

Theft but excluding

(a) Theft by a relative friend acquaintance or other person known to the Insured.

FIG. 8d

4 Warranties Undertaken By The Insured

4.1 Fire Alarm

It is warranted and the Insured hereby undertake in consideration of the discount granted for the Automatic Fire Alarm installation to make a test at least once a week for the purposes of ascertaining the condition of

(a) the batteries

(b) the Brigade connection

N.B. As regards (b) where the Brigade have given a written undertaking to carry out the test the Insured's responsibility will be confined to requirement (a) only.

4.2 Fire Extinguishers

It is warranted and the Insured hereby undertake in consideration of a discount which has been allowed off the premium for approved fire extinguishing appliances kept or situate on the premises to cause an inspection of the appliances to be made every week for the purpose of ascertaining that they are in all respects maintained in proper working order.

4.3 Sprinklers

It is warranted and the Insured hereby undertake in consideration of the discount and/or reduced rate granted for the Automatic Sprinklers to make a test every week for the purpose of ascertaining that the alarm gong is in working order and that the stop valves controlling the individual water supplies and the installation are fully open.

4.4 Intruder Alarm

It is warranted that the Intruder Alarm installed at the Premises the specification for which has been seen and agreed by the Company shall be in operation out of business hours.

FIG. 8e

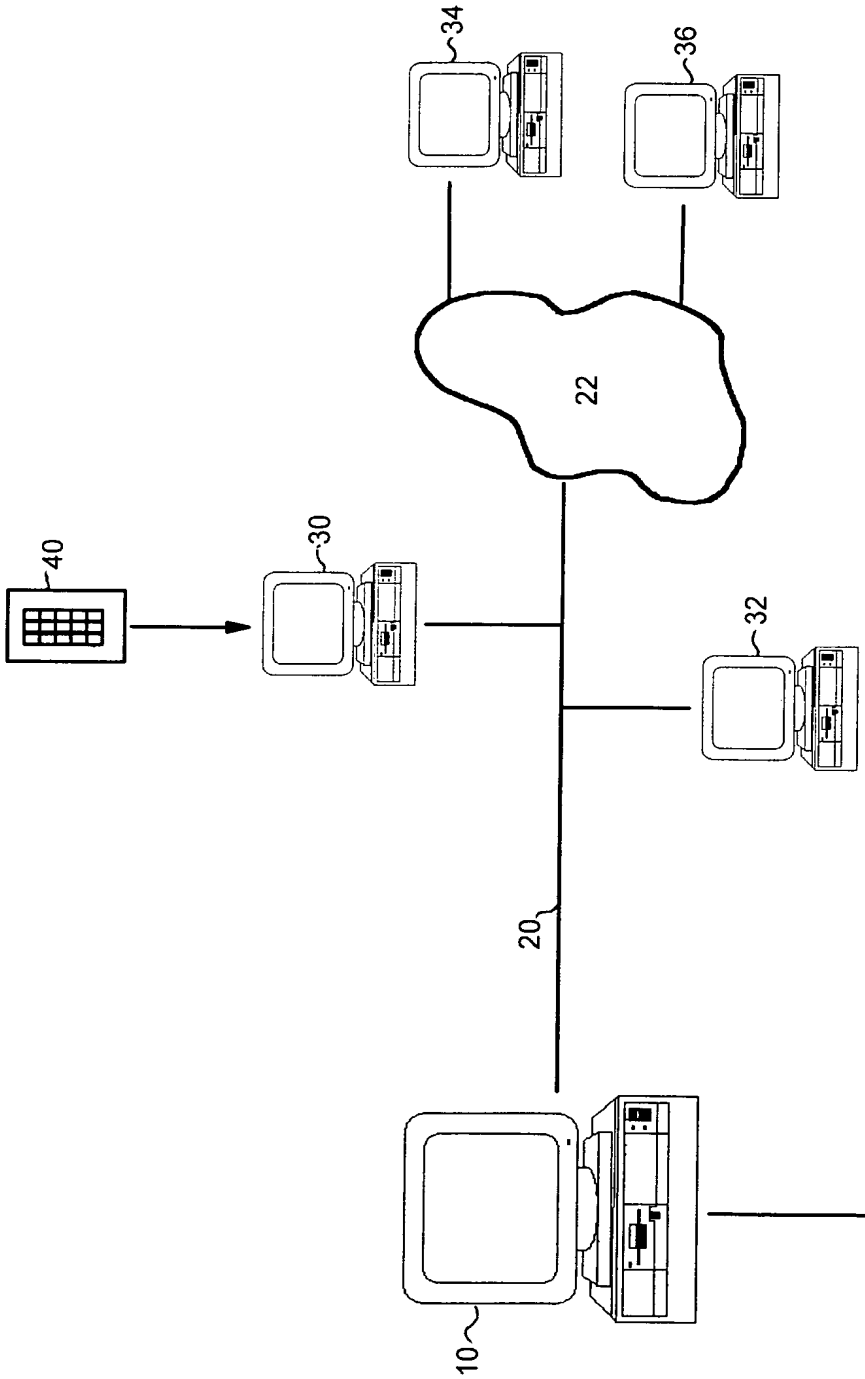

FIG. 9

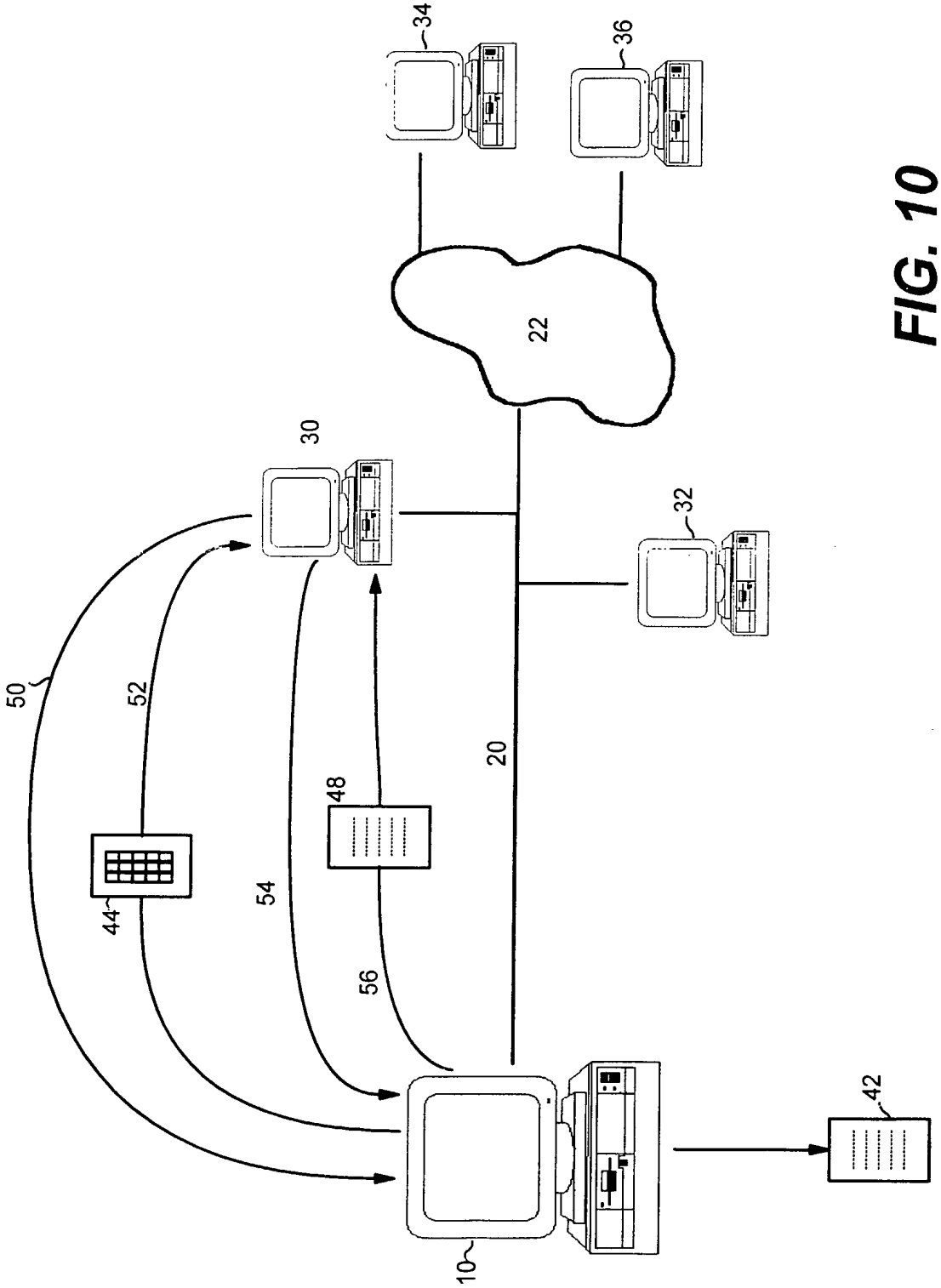

FIG. 10

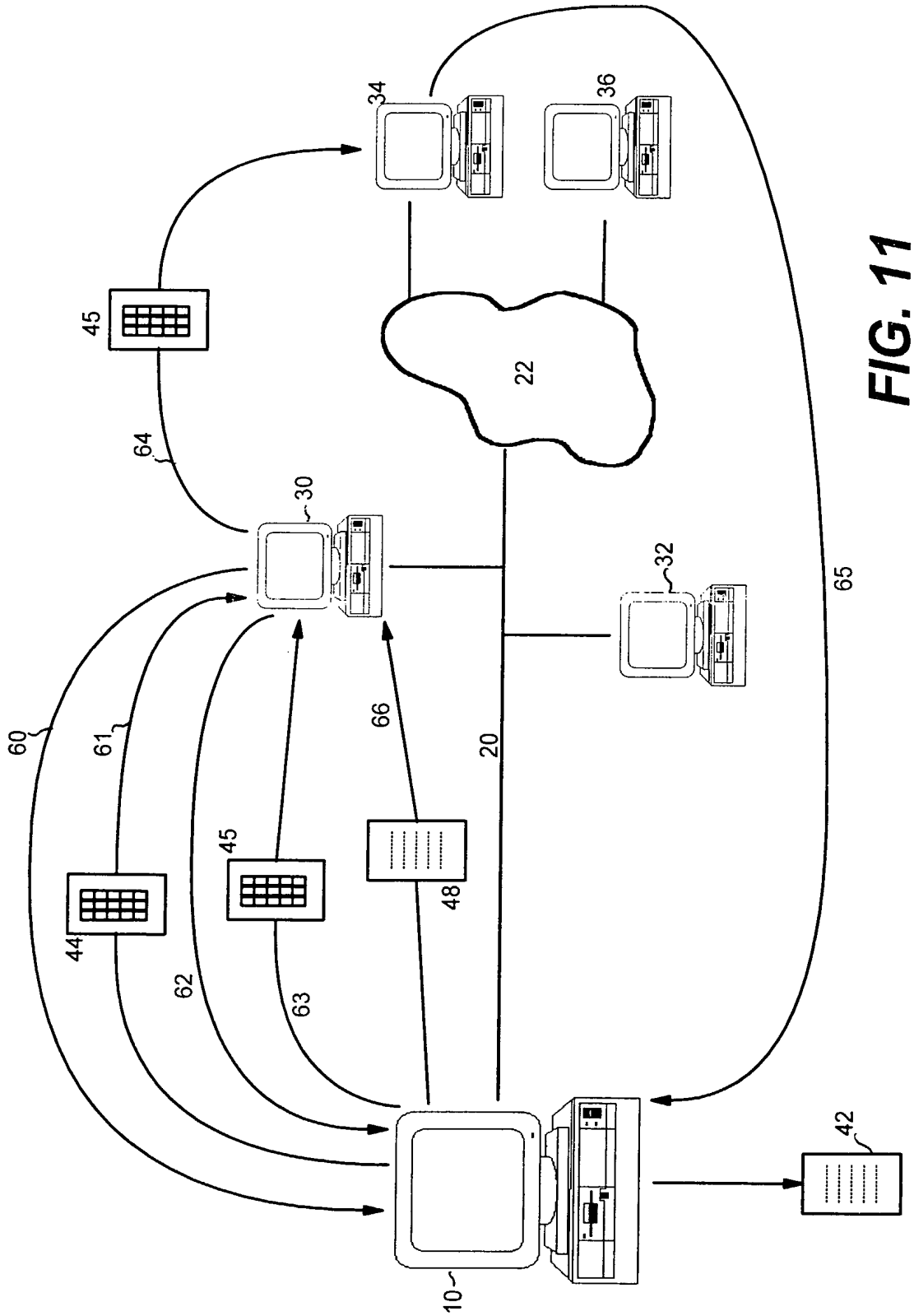

FIG. 11

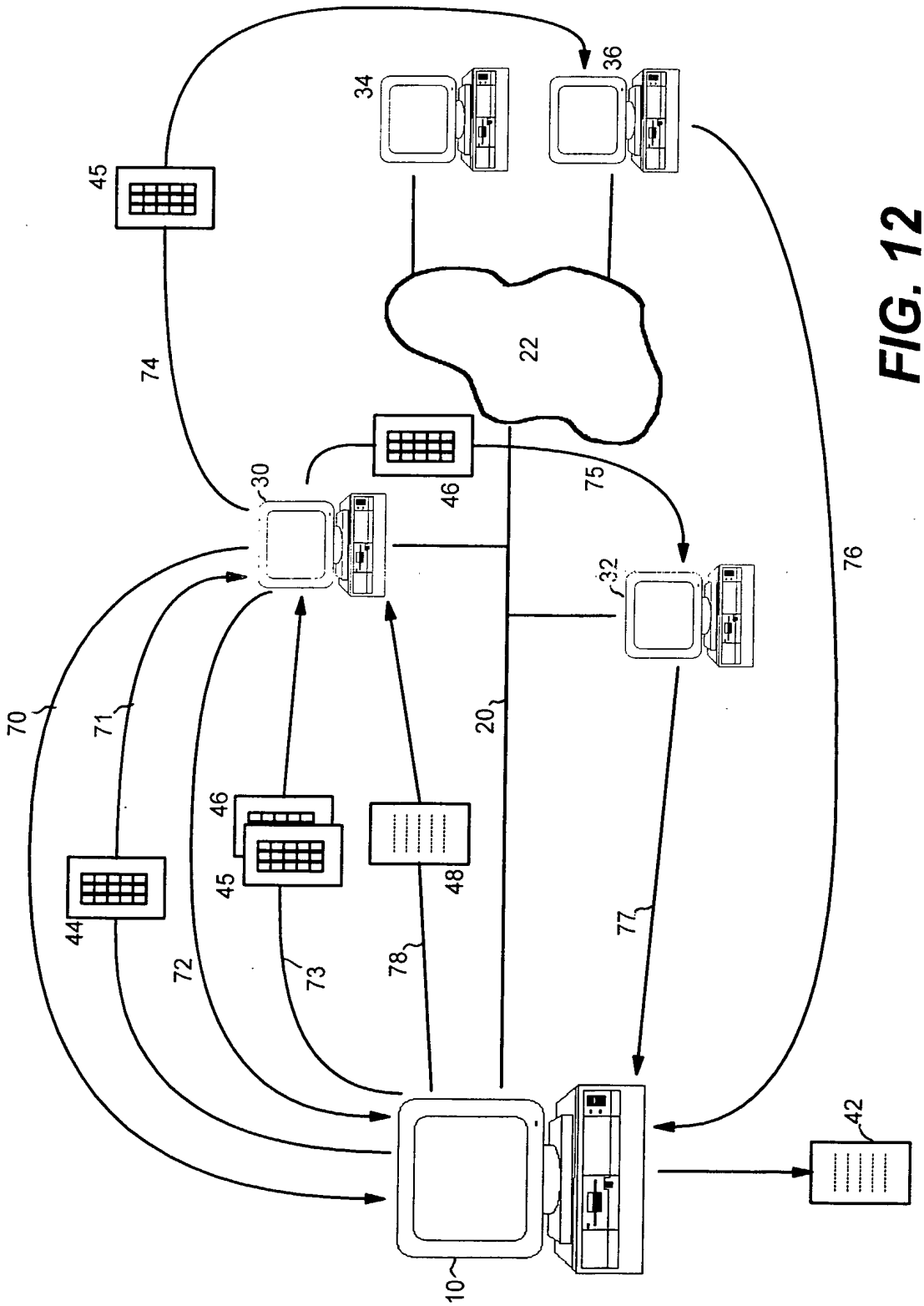

FIG. 12

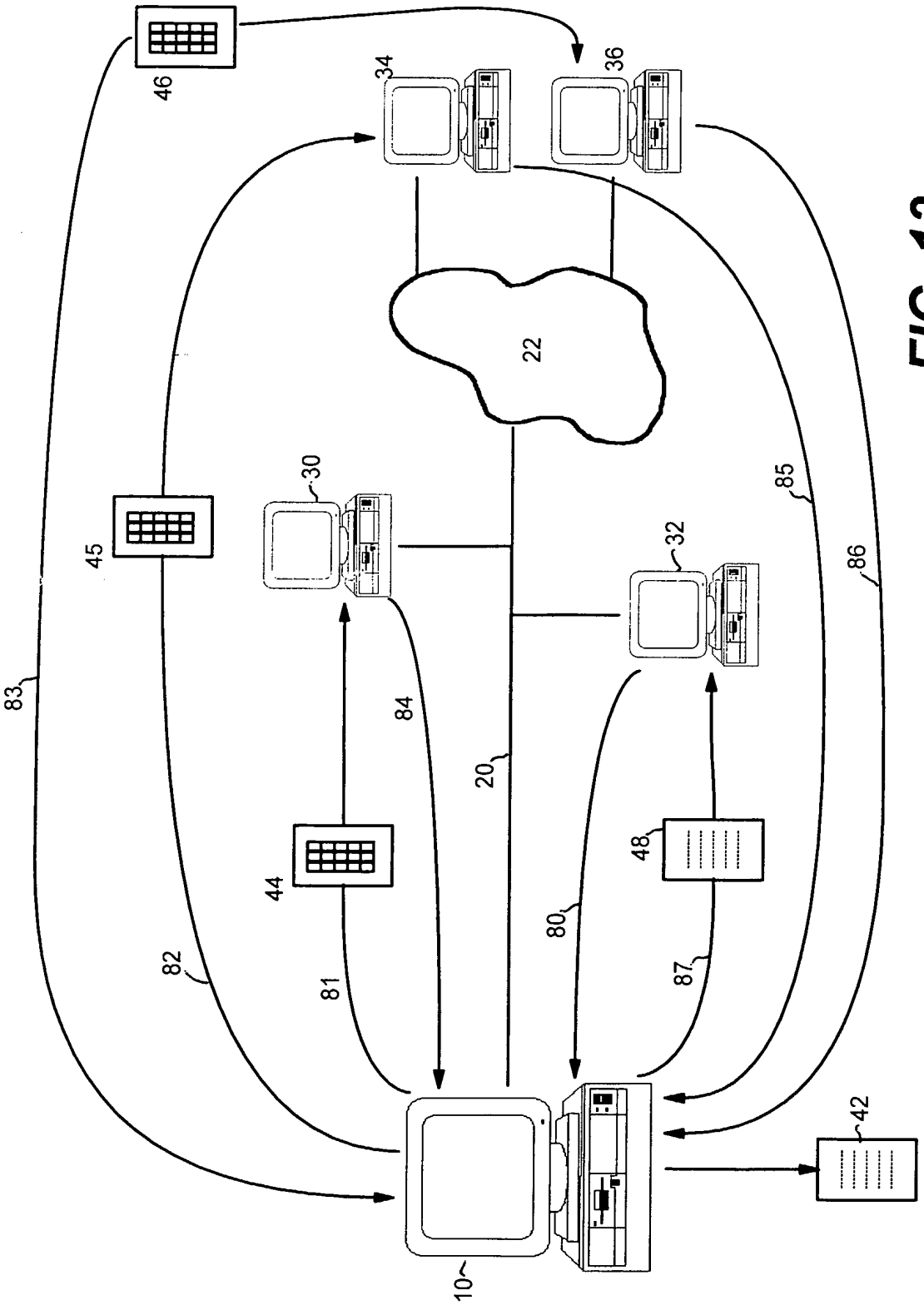

FIG. 13

Project References

Reference Number	10000009
Key-Code	DBUm64eb13XwsHYJ8xn61Dp1jt5aN42i640r8x5J

Project Details

Title	
Description	
Number of Fields	0

Submit

FIG. 14

Project References

Reference Number	10000009
Key-Code	DBUm64eb13XwsHYJ8xn61Dp1jt5aN42i640r8x5J

Project Details

Title	The Dandy ISA
Description	New ISA Target: mature females in the health service Product: internet-based product for individuals to create and maintain their own personal ISA accounts Features: must enforce legal constraints such as maximum cash deposit per annum.
Number of Fields	7

Submit

FIG. 15

Project References

Reference Number	10000009
Key-Code	DBUm64eb13XwsHYJ8xn61Dp1jt5aN42i640r8x5J

Project Details

Title	The Dandy ISA
Description	New ISA Target: mature females in the health service Product: internet-based product for individuals to create and maintain their own personal ISA accounts Features: must enforce legal constraints such as maximum cash deposit per annum.
Number of Fields	7

Project Fields

Field #1

Reference	
Title	
Description	
Style	Edit Box

Field #2

FIG. 16a

Reference	
Title	
Description	
Style	Edit Box

Field #3

Reference	
Title	
Description	
Style	Edit Box

Field #4

Reference	
Title	
Description	
Style	Edit Box

Field #5

Reference	
Title	
Description	
Style	Edit Box

Field #6

FIG. 16b

Reference	
Title	
Description	
Style	Edit Box

Field #7

Reference	
Title	
Description	
Style	Edit Box

Submit

FIG. 16c

Project References

Reference Number	10000009
Key-Code	DBUm64eb13XwsHYJ8xn61Dp1jt5aN42i640r8x5J

Project Details

Title	The Dandy ISA
Description	New ISA Target: mature females in the health service Product: internet-based product for individuals to create and maintain their own personal ISA accounts Features: must enforce legal constraints such as maximum cash deposit per annum.
Number of Fields	7

Project Fields

Field #1

Reference	DANDY01
Title	Proposer Name
Description	Please enter the name of the person responsible for this tender
Style	Edit Line

Field #2

FIG. 17a

Reference	DANDY02
Title	Proposer Position
Description	Please enter the position of the person responsible for this tender
Style	Edit Line

Field #3

Reference	DANDY03
Title	Start Date
Description	Can you start the project on 1/11/2000
Style	Checkbox

Field #4

Reference	DANDY04
Title	Start Date Alternative
Description	If not, when is the earliest date after 1/11/2000 that you can start the project
Style	Date

Field #5

Reference	DANDY05
Title	Service Level
Description	Can you provide 24/7 service for the duration of the project and the lifespan of the product
Style	Checkbox

Field #6

FIG. 17b

Reference	DANDY06
Title	Service Level Not
Description	If not, please explain why
Style	Edit Box

Field #7

Reference	DANDY07
Title	Service Level alternative
Description	Please specify the level of service that you can provide
Style	Edit Box

Submit

FIG. 17c

Project References

Reference Number	10000009
Key-Code	DBUm64eb13XwsHYJ8xn61Dp1jt5aN42i640r8x5J

Project Details

Title	The Dandy ISA
Description	New ISA Target: mature females in the health service Product: internet-based product for individuals to create and maintain their own personal ISA accounts Features: must enforce legal constraints such as maximum cash deposit per annum.
Number of Fields	7

Project Fields

Field #1

Reference	DANDY01
Title	Proposer Name
Description	Please enter the name of the person responsible for this tender
Style	Edit Line

Field #2

Reference	DANDY02

FIG. 18a

Title	Proposer Position
Description	Please enter the position of the person responsible for this tender
Style	Edit Line

Field #3

Reference	DANDY03
Title	Start Date
Description	Can you start the project on 1/11/2000
Style	Checkbox

Field #4

Reference	DANDY04
Title	Start Date Alternative
Description	If not, when is the earliest date after 1/11/2000 that you can start the project
Style	Date

Field #5

Reference	DANDY05
Title	Service Level
Description	Can you provide 24/7 service for the duration of the project and the lifespan of the product
Style	Checkbox

FIG. 18b

Field #6

Reference	DANDY06
Title	Service Level Not
Description	If not, please explain why
Style	Edit Box

Field #7

Reference	DANDY07
Title	Service Level alternative
Description	Please specify the level of service that you can provide
Style	Edit Box

FIG. 18c

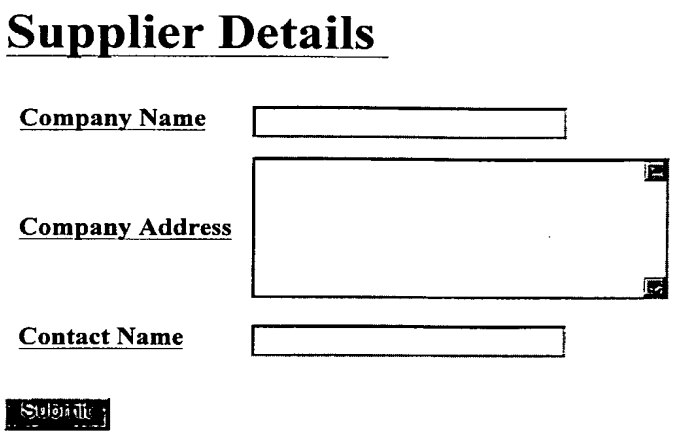
Supplier Details
Company Name
Company Address
Contact Name
Submit

FIG. 19

Supplier Details

Company Name ACME Software PLC

Company Address
ACME House
ACME Way
ACME-Upon-Thames
ACMESHIRE

Contact Name Miss Hachmee

Submit

FIG. 20

ACME Software PLC

ACME House
ACME Way
ACME-Upon-Thames
ACMESHIRE

Dear Miss Hachmee

You are invited to tender for the project detailed below.

Project Title:	The Dandy ISA
Project Description:	New ISA Target: mature females in the health service Product: internet-based product for individuals to create and maintain their own personal ISA accounts Features: must enforce legal constraints such as maximum cash deposit per annum.
Your Reference:	10000010
Key-Code Access:	SMEBXSfcaw1qTp4kg68hxzt604ha1NflsUNK3I6z

Tender is via a secure internet system located at **www.sjrl.com/tender**

Yours Truly

HEAD OF PROCUREMENT

FIG. 21

Invitation to Tender for The Dandy ISA by ACME Software PLC

New ISA
Target: mature females in the health service
Product: internet-based product for individuals to create and maintain their own personal ISA accounts
Features: must enforce legal constraints such as maximum cash deposit per annum.

1. Proposer Name

Please enter the name of the person responsible for this tender

2. Proposer Position

Please enter the position of the person responsible for this tender

3. Start Date

Can you start the project on 1/11/2000

☐ YES
NO

4. Start Date Alternative

If not, when is the earliest date after 1/11/2000 that you can start the project

05 / 03 / 2000

5. Service Level

Can you provide 24/7 service for the duration of the project and the lifespan of the product

☐ YES
NO

FIG. 22a

6. Service Level Not

If not, please explain why

7. Service Level alternative

Please specify the level of service that you can provide

Submit

FIG. 22b

Invitation to Tender for The Dandy ISA by ACME Software PLC

New ISA
Target: mature females in the health service
Product: internet-based product for individuals to create and maintain their own personal ISA accounts
Features: must enforce legal constraints such as maximum cash deposit per annum.

1. Proposer Name

Please enter the name of the person responsible for this tender

Miss Hachmee

2. Proposer Position

Please enter the position of the person responsible for this tender

New Projects Director

3. Start Date

Can you start the project on 1/11/2000

☐ YES

NO

4. Start Date Alternative

If not, when is the earliest date after 1/11/2000 that you can start the project

30 / 11 / 2000

5. Service Level

Can you provide 24/7 service for the duration of the project and the lifespan of the product

☑ YES

NO

FIG. 23a

6. Service Level Not

If not, please explain why

7. Service Level alternative

Please specify the level of service that you can provide

Submit

FIG. 23b

Invitation to Tender
for
The Dandy ISA
by
ACME Software PLC

New ISA
Target: mature females in the health service
Product: internet-based product for individuals to create and maintain their own personal ISA accounts
Features: must enforce legal constraints such as maximum cash deposit per annum.

1. Proposer Name

Please enter the name of the person responsible for this tender

Miss Hachmee

2. Proposer Position

Please enter the position of the person responsible for this tender

New Projects Director

3. Start Date

Can you start the project on 1/11/2000

NO

FIG. 24a

4. Start Date Alternative

If not, when is the earliest date after 1/11/2000 that you can start the project

30/11/2000

5. Service Level

Can you provide 24/7 service for the duration of the project and the lifespan of the product

YES

6. Service Level Not

If not, please explain why

7. Service Level alternative

Please specify the level of service that you can provide

FIG. 24b

Response (s) Comparison Form

This form sets out the responses received from the selected Supplier(s), using as headings for each section the text of the questions posed, ie similar to the required response format, but then followed by a table presenting the responses of each of the Suppliers.

Suppliers response are referenced as follows in each table:

S1	Acme (you can enter a descriptive code here and submit this form to substitue a code that is more meaningful to you) ☐
S2	Bacme (you can enter a descriptive code here and submit this form to substitue a code that is more meaningful to you) ☐
S3	Cacme (you can enter a descriptive code here and submit this form to substitue a code that is more meaningful to you) ☐

Tick here ☐ if you want a form with spaces for you to add comments or queries for the reviewing team below each question.

Project Details

Title	The Dandy ISA
Description	New ISA Target: mature females in the health service Product: internet-based product for individuals to create and maintain their own personal ISA accounts Features: must enforce legal constraints such as maximum cash deposit per annum.
Number of Fields	7

Field #1

FIG. 25a

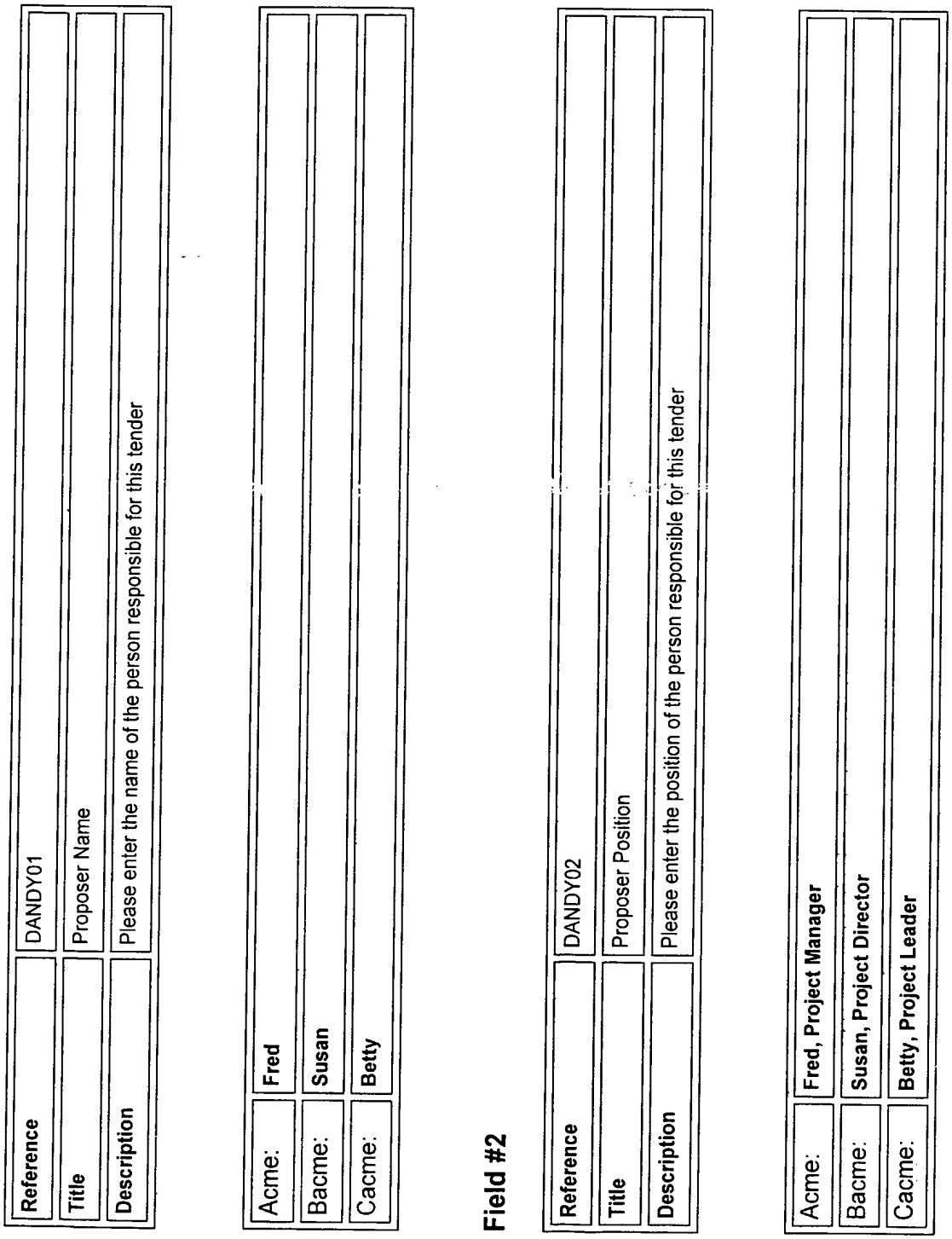
Reference
DANDY01
Title
Proposer Name
Description
Please enter the name of the person responsible for this tender
Acme:
Fred
Bacme:
Susan
Cacme:
Betty
Field #2
Reference
DANDY02
Title
Proposer Position
Description
Please enter the position of the person responsible for this tender
Acme:
Fred, Project Manager
Bacme:
Susan, Project Director
Cacme:
Betty, Project Leader

FIG. 25b

Field #3

Reference	DANDY03
Title	Start Date
Description	Can you start the project on 1/11/2000

Acme:	**Yes**
Bacme:	**Yes**
Cacme:	**No**

Field #4

Reference	DANDY04
Title	Start Date Alternative
Description	If not, when is the earliest date after 1/11/2000 that you can start the project

Acme:	
Bacme:	
Cacme:	**1/12/2000**

FIG. 25c

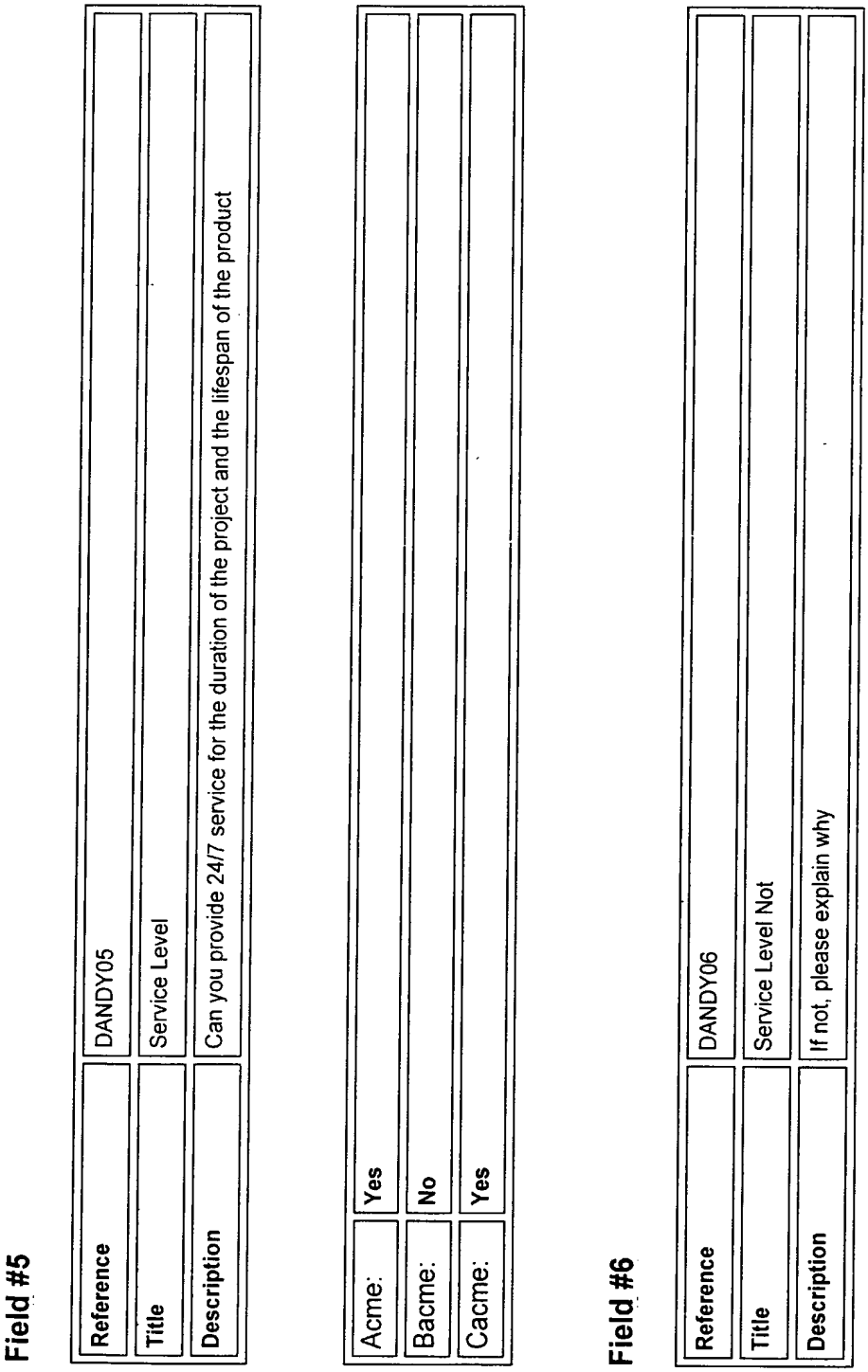
Field #5
Reference
DANDY05
Title
Service Level
Description
Can you provide 24/7 service for the duration of the project and the lifespan of the product
Acme:
Yes
Bacme:
No
Cacme:
Yes
Field #6
Reference
DANDY06
Title
Service Level Not
Description
If not, please explain why

FIG. 25d

Acme:	
Bacme:	**Our 24/7 service is provided through Bacme Inc under a separate Services Agreement**
Cacme:	

Field #7

Reference	DANDY07
Title	Service Level alternative
Description	Please specify the level of service that you can provide

Acme:	
Bacme:	**12 by 7 cover is available from us, London time**
Cacme:	

Input name of selected supplier and press submit to generate contract for this supplier:

Submit Reset

FIG. 25e